ANNUAL ABSTRACT

OF

OPHTHALMOLOGICAL LITERATURE.

1881–1882.

BY C. S. TURNBULL, M.D.,

Oculist to the German Hospital.

OF PHILADELPHIA.

Turnbull C. S.

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Effects of Eserine and the Mydriatics, Atropine, Duboisine, Homatropine and Hyoscyamine.

After a series of careful experiments,* HERMAN SCHÄFER (*A. f. Oph.*, Vol. x, No. 2) states, in regard to the influence of eserine upon the three agents, atropine, duboisine, homatropine, that it counteracts the effects of homatropine completely and permanently; that of duboisine, and more particularly that of atropine, however, only when instilled in larger quantities, and then only for a brief period, after which it yields again to the effects of the latter.

The *absorption* into the aqueous humor of these three substances (atr., dub., hom.), as well as their *transmissibility*, has been demonstrated by experiments. Aqueous humor containing atropine and duboisine acts more rapidly when transferred. Aqueous humor containing atropine and duboisine secures maximum dilatation, but that charged with homatropine does not effect this result completely.

In general, it is sufficiently demonstrated that, as respects the *dilatation of the pupil*, atropine, if somewhat slower, possesses a more lasting influence than duboisine; that the latter dilates the pupil in a shorter time, and momentarily acts more energetically, but loses its influence more quickly; finally, that homatropine develops its influence in a briefer time than either of the other agents, but produces a lesser dilatation of the pupillary diameter, and is the first to decline in its effects. The degree of concentration in which the homatropine is employed is apparently without influence upon the duration of the effect.

The *accommodation* is paralyzed more rapidly by duboisine and homatropine—by duboisine even a little more so than by homatropine; with the latter, however, the normal state returns in twenty-four hours, with duboisine after three to four days. Paralysis of the accommodation by atropine proceeds very gradually, and persists the longest.

In accordance therewith would be the *practical application* of these three agents. Where it is desired to secure simply dilatation of the pupil for the purpose of examining the fundus, or to paralyze the accommodation for the certain determination of the state of the refraction, homatropine is decidedly to be preferred to the other drugs.

Dr. S. D. RISLEY, in a recent paper,* also concludes "That for the correction of anomalies of refraction in otherwise normal eyes the homatropine is to be preferred."

If, on the other hand, a therapeutical effect is desired, homatropine is to be set aside, on account of its insufficient and too restricted effect, and the application of atropine and duboisine can alone enter into consideration. Risley (*loc. cit.*), from a therapeutic standpoint, concludes "That, if retino-choroidal disturbance is also present, hyoscyamine or duboisine are preferable; (*a*) to atropine, because of the shorter duration of the treatment; (*b*) to homatropine, because of their more persistent control over the ciliary muscle; and that hyoscyamine† is preferable to duboisine, since the tendency to systemic poisoning is not so great."

*Translated by Isidor Fürst, M.D., of New York.

*"The Comparative Value of the Mydriatics," Transac. Am. Ophthal. Soc., 1881.

†Hyoscyamine grs. ij to f℥j. R. fears they adulterate Hyos. with Atrop. (Read, "*Identity of the Mydriatic Alkaloids*," p. 15, 1st Abstract. T.)

Schäfer recommends the use of duboisine in iritic conditions, with or without extensive synechiæ, where atropine had been employed for some length of time, and with but partial success, on account of conjunctival and ciliary injection. Duboisine, he says, never causes conjunctival irritation, and even diminishes that caused by atropine.*

Dr. H. KNAPP (*Archiv f. Ophthal.*, Vol. x, No. 2) reports *three cases of quinine amaurosis.* The characteristic features of this affection, according to Roosa, Wecker, Voorhies, Michel, Gruening and Knapp, are:—

1. Total blindness subsequent to the taking of large quantities of quinine.†

2. Pallor of the optic disks.

3. Marked diminution of the retinal blood vessels, in number and calibre.

4. Contraction of the visual field.

K. mentions some *other symptoms:* "1. *Diminution of the color-sense* (red-green, then green blindness); 2. *Diminution of the light-sense* (as if a vail was over the eyes); 3. *The pupils during the total blindness are irresponsive to light*, but (Gruening) move on accommodative efforts; 4. *Anæsthesia of the cornea;* 5. *Impairment of hearing*, to total deafness, and *tinnitus aurium* in every case, *though transient.*"

The subjective noises and deafness, though exceedingly frequent symptoms of quinism, are always transient; I, at least, have not been able to trace one case of persistent deafness or tinnitus aurium to the use of quinine alone. (L. TURNBULL has long since emphatically expressed himself in a similar way.—REP.) The impairment of sight will, I suppose, disappear entirely in the mild cases, whereas in the severe typical ones the restoration of the central acuteness of vision seems to be complete only in a certain number of cases; in almost all, however, a fair amount, $\frac{20}{200}$ to $\frac{20}{20}$ of S., is regained. The contracted visual field expands slowly, commonly does not reach its natural limits again.

The progress of quinine amaurosis, even in advanced cases, is, on the whole, good, as there is, thus far, no case of permanent blindness on record, and the typical, *i. e.*, fully developed cases, are very rare. How frequent the mild cases are, and how rapidly they recover, remains for further investigation to ascertain.

No beneficial mode of treatment seems yet to have been discovered. The "depleting therapy" to which v. GRAEFE ascribes the recovery in his second case will, in view of the marked ischæmia of the retina discovered of late, scarcely find any advocates now. Nitrite of amyl, given in the way of inhalation, by Voorhies, Gruening and Michel, showed no effect. Strychnia and other remedies, as well as electricity, were likewise inefficient. Horizontal position, as long as the general anæmia, and particularly that of the brain and eye, are marked, seems beneficial. Generous diet, with perhaps gentle stimulants, and as soon as practicable, sojourn and exercise in a healthy, invigorating atmosphere, appear rational means of recovering strength, and supplying the retina with what it most needs—blood."

Dr. J. J. CHISHOLM, of Baltimore, at the last meeting of the Am. Med. Association, read a paper on the *Actual Cautery Needle in the Treatment of Conical Cornea.* The operation is performed with a fine sewing needle, heated to whiteness in an alcohol lamp, and thrust through the apex of the cone. The subsequent cicatrization causes a flattening of the cone. Dr. C. also exhibited a *needle designed for the destruction of the hair-bulbs*, in cases of displaced cilia, by electrolysis. It consists of a needle set into a handle, which is introduced *cold* into the root of the hair-bulb. By pressing on a button, connection is made, and the needle becomes heated, and the electrolytic action is manifest by the bubbles of gas escaping. Reported (*A. f. O.*, Vol. x, No. 2, by S. Burnett, M. D.)

In his abstract of *Am. Ophthal. Literature* for the first quarter of the year 1881, Dr. Swan M. Burnett, of Washington (*loc. cit.* p. 235), reports the following:—

H. M. BANNISTER. *On Some Points in Regard to Color Blindness.* (*Jnl. of Nervous and Mental Diseases*, Jan.) B. takes the same position as the reviewer (Burnett), in his article in the last number of the *Archives f. Oph., viz.:* that the cause of some cases of color-blindness is to be found in the brain-centre and not in the retina; and thinks that the defect in color-sense can be improved by exercise. He thinks Holmgren's test tends to magnify slight defects in the color-sense, and that more than one method of examination should be used where we want extreme accuracy.

C. S. BULL. A contribution to *the Pathology of Orbital Tumors;* being a study of the secondary processes in the peri-periosteum and bones of the orbit and vicinity (N. Y. *Med. Journal*, March).

CASE 1.—Encapsulated orbital sarcoma; extirpation; return of the growth as a myxo-sarcoma; infiltration of the bones of the orbit, and

*We cordially endorse Shäfer's recommendation of duboisine in iritic conditions.

† The *total blindness*, in all the cases thus far made known, was only temporary.

of the facial bones of the left side in general; three operations for the removal of the tumor.

CASE 2.—Intra-ocular sarcoma; secondary infiltration of the optic nerve and orbit; degeneration of the orbit and face; four operations for the removal of the growth.

CASE 3.—Fibro-sarcoma of the orbit, involving the periosteal lining, and subsequently, the bones of the orbit and face.

B. concludes, from a study of these cases, that such growths are not fit subjects for operative interference." We would most emphatically endorse B.'s opinion, as experience, in numerous cases similar to his, has taught us how futile operative interference has proven itself to be.

J. C. DALTON. *Centres of Vision in the Cerebral Hemispheres* (N.Y. *Medical Record*, March 26th). From experiments performed on dogs, D. feels justified in concluding: "1. Extirpation of the angular convolution causes loss of visual perception on the opposite side. 2. This operation is not followed by any disturbance of the intelligence, attitude, power of locomotion, or general sensibility. 3. It does not interfere with the local sensibility of the retina or conjunctiva, the reaction of the pupil to light, nor with the normal consentaneous movements of winking. Its effects are, therefore, confined to the exercise of visual sensibility.

J. P. WALL. *Congenital Absence of the Eyeballs* "Anophthalmia" (N. Y. *Med. Record*, Mar. 26th). The tutamina oculi were perfectly formed, but there were no eyeballs, even in a rudimentary form. The lachrymal gland was present. The child was a white male, and six months old.

W. C. AYRES. *The Physiology of the Visual Purple* (N. Y. *Med. Journal*, May). A. sums up his conclusions as follows: "We know that the purple is a photo-chemical substance which is sensible to light, and that its seat is in the outer segments of the rods, whereas it is never found in the cones. The cones, on the other hand, being the only elements found in the fovea centralis, we are forced to the conclusion that distinct vision, both for objects and for colors, is independent of its existence. In the higher classes of animals it is sensitive to light, but in some deep-sea fishes, cephalopods, etc., it has its seat in the rods, but is no longer sensitive to light, although it has the same color as before. Where it is not sensitive to light the optical structure of the eye is very defective. It is an albuminoid compound, and is a secretion of the pigment epithelial cells of the retina; but this secretion is not controlled by any of the larger nerve trunks, which have a part to play in the functions of the eye. We know of no drug which can diminish its secretion, but pilocarpine and muscarine greatly increase it."

In their report on the Progress of Ophthalmology, for the first half of the year 1880,* Drs. H. MAGNUS and A. NIEDEN, note the following:—

BEAUREGARD. *Suppuration of the Vitreous.* B. says the pus cells come from the cells of the choroid. (Sec. *de Biol*, Paris, June 12th, 1880.)

KNIES, M. *Argyria Oculi* (Z. M., Vol. XVIII, p. 165). After external application of the nitrate of silver stick for fifty years, K. observed two modes of staining of the tissues, one being diffused, the other consisting of minute granules. The cornea was stained brown, especially in the centre; the epithelium and endothelium of Descemet's membrane were free; the subconjunctival tissue was, in its whole extent, pervaded by lymph spaces, which were densely filled with granules of silver. In transverse sections the blood vessels were surrounded by black rings, the adventitia being densely filled with granules.

HALTENHOFF. *Conjunctival Hemorrhage* in a new-born child. Hæmophilia; uncontrollable hemorrhage caused *death* in thirty-six hours (Rapp. sur. les trav. dela. Soc. Méd. de Genève, p. l'an, 1879).

HÖGYES, A. *The Changes of the Eye after Extirpation of the Facial Nerve* (*Archiv. f. Exper. Pathol.*, Vol. XI, p. 258). After simple division of the nerve permanent affections of the cornea are rare; after evulsion, the cornea becomes dry, with more or less extensive ulceration; after division of the trigeminus the eye is always lost by the subsequent neuropathic keratitis.

KRETSCHMER. *Keratitis Neuro-paralytica.* Panophthalmitis after neurectomy of the infra-orbital nerve (*C. f. A.*, March, p. 65, with polemic correspondence, l. c., pp. 163, 236, 293, 363).

GALEZOWSKY. *A Case of Congenital Irideremia* (absence of the iris) through several generations (*Rec. d' Oph.*, 3, No. 2, Feb).

WOLFE (Glasgow). *A Case of Bleeding Tumor of the Iris*, about four mm. in diameter, bleeding every four to six weeks (*Med. Times and Gaz.*, May 8th, p. 504).

CHISHOLM, J. J. *A piece of metal in the eye for 23 years, without causing sympathetic ophthalmia* (*Bost. Med. Jour.*, Vol. CII, p. 248).

SCHNABEL. *Secondary Glaucoma.* Upon an observation of glaucoma after traumatic luxation of the lens and stretching of the fibres of the zonula in incarceration of the capsule into the

* Translated by R. O. Born, M.D., of N. Y., *Archiv Ophthal.*, Vol. X, No. 2.

wound, the author is opposed to Knies' view of an occlusion of Fontana's spaces. The abnormal stretching of the zonula is said to be the only cause of glaucoma, especially since the author observed the cure of an acute attack in chronic glaucoma, by the spontaneous luxation of the lens, with detachment, and thus relaxation of the zonula (*Wien. Med. Bl.*, Vol. III, Nos. 6 and 7, p. 130).

BREMER, VICTOR. Among 223 *deaf-mutes*, HANSEN and KRENSCHEL found 9 cases = 4 per cent. of *retinitis pigmentosa* (*Inaug-Dissert., Kopenhagen*, 1880).

GATLI, FR. *Amaurosis produced by salicylate of soda poisoning* (*Gaz. Degli. Ospit.*, Vol I, p. 129).

URTHOFF. *Atrophy of the optic nerve*, with special consideration of, 1, the causes; 2, the knee-phenomenon (patellar-tendon); 3, the condition of the visual field. It comprises 83 cases. The knee-phenomenon is absent in 13 out of 15 cases of spinal atrophy of the optic nerve, in one-third of the cases of genuine progressive atrophy, and is, therefore, a valuable symptom for the differential diagnosis. In 7 patients there was at the same time myosis. In spinal and simple optic nerve atrophy, the limitation of the visual field begins in a small majority of cases at the outer side (*A. f. O.*, Vol. XXVI, No. 1, p. 244).

HAFFNER. *Rare migration of a round worm*, 3 cm. in length, *into the left lower lachrymal canal*, in a child suffering from severe whooping-cough (*Berlin. Klin. Wochensch.*, No. 24).

SIGISMUND. A small *splinter of wood* kept *in the eye for* 47 *years without any disturbance* (*Berlin. Klin. Wochensch.*, No. 5, 1880).

ERB. *The ocular affections in tabes dorsalis.* Among 56 cases there was seven times atrophy of optic nerve, and seventeen times paralysis of ocular muscles (*Deutsch. Archiv. f. Klin. Med.* 1879).

STEWART, GRAINGER. The *eye symptoms in locomotor ataxia.* Among 70 cases there were 20 cases of squint, three of ptosis, four of diplopia, without manifest squint; seven of myosis, four of difference in the pupillary diameter, eight of immobility to light, while the pupils contracted upon convergence; four times temporary amblyopia with subsequent improvement; fourteen times atrophy of the optic nerves with amaurosis in one-half of the cases at quite an early period (*C. f. Med. W.*, 1880, *p.* 62).

HOSCH (Basel). *Embolic Panophthalmitis* in *Puerperal Fever.* Literature of 15 cases. H. found in one case large accumulations of micrococci in some of the smaller retinal vessels, also in numerous uriniferous tubes, and in more developed stages in the vitreous body (*A. f. O.*, Vol. xxvi, No. 1, p. 177).

ON THE EXTRACTION OF CATARACT.

Knapp's Modification of Graefe's Peripheric-linear and Wecker's Flap-section, with Peripheric Capsulotomy and Subsequent Discission of the Capsule.

Both observation and experience induce us to recommend what is known as "Knapp's modification" of the operation for the extraction of cataract,* and, as we consider his method of sufficient interest and importance, we quote his own words and describe the details of the operation somewhat at length, in the hope of tempting the more progressive, and especially the younger, members of the profession to give this method a fair trial, with the full assurance that it offers more advantages and less disadvantages than any other, and, on the basis of statistical data, claims a peculiar influence on the final object of all operations for cataract—the restoration of sight.

In a recent lecture† Knapp makes a synopsis of *thirty extractions*, which serve as a basis for the following remarks, in the course of which he describes in detail the steps of his operation; and we have added cuts of most of the instruments he employs:—

"The *youngest* patient was a servant girl, aged thirty-two years, whose cataract I would, under ordinary circumstances, have operated on by division, but as she was blind in both eyes, had only recently come to this country, and was without support, I preferred that operative procedure which restored her sight in the shortest time. There were three patients between forty and forty-eight years of age; the remainder were over fifty. The oldest was eighty-two.

"The *method* was a *more or less linear or low-flap section, with a broad iridectomy, and peripheric opening of the capsule.* In the first operations (Fig. 1), Graefe's section begins and terminates one millimeter in the corneo-scleral junction, its apex being at the transparent margin of the cornea, or even one to two millimeters below it. Gradually I shifted into the flap-section (Fig. 2), which De Wecker, of Paris, recommends as the best, namely, a section with a Graefe's knife, situated exactly in the transparent margin of the cornea, extending over its upper third.

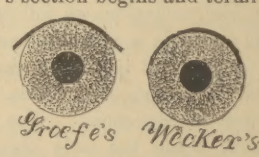

FIG. 1. FIG. 2.

* Knapp's previous report of a hundred cases of extraction (the sixth hundred), published in the July number, 1879, of the *Archives of Ophthalmol.*, refers to 66 successive cases of extraction with peripheric capsulotomy, and, together with the preliminary communication in Vol. VI, and later in Vol. X, No. 3, contains the substance of his views and experience on this subject, also historical and critical remarks on the peripheral opening of the capsule.

† On the Extraction of Cataract. By Herman Knapp, M.D. The *Medical Record*, New York, Feb. 18th, 1882.

For full-sized cataracts, I made it somewhat larger. Both sections—the linear and the flap—have their advantages and their disadvantages; the linear does not incline to tilting, and shows a very accurate coaptation, but as its ends are nearer to the insertion of the iris, it is more liable than the flap to adhesions and incarcerations of the iris and to cyclitic processes. With regard to firm closure of the wound, one of the most important factors in the whole operation, the flap, though easily gaping during the operation and soon after it, has one redeeming quality—it cuts the lamellæ of the cornea obliquely, not at right angles, as the linear section does. This principle of oblique piercing is frequently made use of, and with admirable ingenuity, in the animal organism. Let me only mention the ductus choledochus piercing the wall of the duodenum obliquely, by which contrivance the bile can, without obstacle, flow into the gut, but the food, while passing from the pylorus onward, will press the inner wall of the valve-like opening of the bile-duct against the outer, and thus completely close the aperture. Somewhat in the same manner the inner lip of the flap-section is pressed against the outer by the contents of the globe, whereby a firm and lasting closure may be established. Theorizing is a fine thing in its way, but worthless without the test of experience, because in complicated problems we commonly fail to know and appreciate the quality and quantity of all the coöperating factors. Wecker's section has thus far shown us very kind healings, encouraging to further trial."

The most approved form of speculum, *i. e.*, Graefe's modified, is shown by Fig. 3. The arms are curved so that the loop of spring and adjusting screw are out of the operator's way. There is a right and left speculum. Fixation forceps by Fig. 4, and a typical Graefe's cataract knife, by Fig. 5.

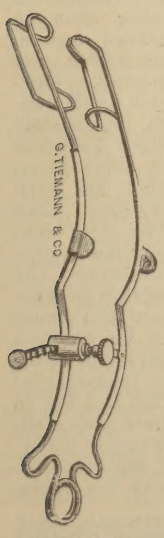

Fig. 3.

Fig. 4.

Fig. 5.

"The *iridectomy* in almost all of our operations was large. The coloboma varies from $\frac{1}{6}$ to $\frac{1}{4}$ of the corneal circumference. When the corneal section and the opening of the capsule are peripheric, it must be large, or the columns of the coloboma will be an obstacle to the exit of the lens, which, if overcome by force, entails bruising and incarceration of the iris. When the iris is being cut, it ought not to be dragged with the iris forceps (Fig. 6) into the corners of the section, since there the lips of the

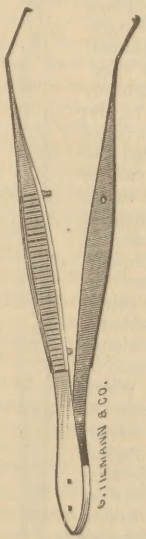

Fig. 6.

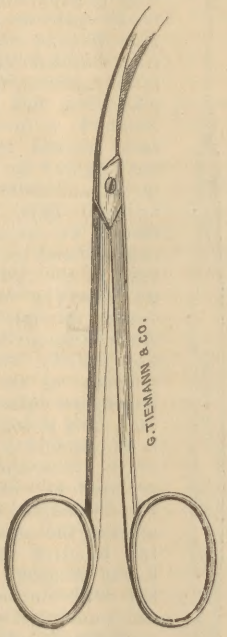

Fig. 7.

wound act like clamps, holding the iris-tissue tight between them. It is good practice to seize the iris in the centre of the section, draw it straight up and cut it off close to the cornea—carefully avoiding the corneal tissue itself—in one, two, or three strokes of the iris scissors (Fig. 7), as may prove convenient, and afterward, according to the sufficient or insufficient size of the coloboma, either reduce or exsect iris-tissue which may still lie in the corners. Such tissue, even after a clean and apparently satisfactory iridectomy, remains hidden in the wound more frequently than we imagine. Proofs: 1. The anatomical examination of eyes on which iridectomy had been made for glaucoma, or combined with cataract extraction, commonly found the stump of the iris or its adjacent tissue united with the corneal scar, even if no outward inspection could discover such a condition. 2. Many times, when passing the cystotome from the corners of an apparently unobstructed corneal section toward the centre, I drew iris-tissue along, which was either the periphery of the adjacent iris, or the stump of the part which had been removed. Such portions, of course, have to be grasped with the forceps and cut off. This observation has taught me not to rest satisfied with an apparently correct coloboma, even if its sphincter edges are in the anterior chamber, but, before opening the capsule, to clear the whole

extent of the corneal section, especially the corners, of iris-tissue, which, with a delicate probe or spatula, may be stroked back into the anterior chamber."

"When the wound is clean the operator takes the fixing forceps in his own hand, presses gently with it on the globe, so as to make the corneal section slightly gape, and *passes the needle cystotome* (see Fig. 8) *from the inner corner of the section to the outer, through the anterior capsule of the lens.* This manœuvre has to be closely watched; a far-sighted operator should make himself near-sighted by convex spectacles, and either daylight or artificial light ought to be thrown on the eye by a large convex hand-lens, so that the point of the cystotome can be accurately followed in its course through the capsule. An insufficient capsulotomy is commonly without consequences, as the cataract on its way out enlarges the opening; only in tough capsules it is an obstacle to the expulsion of the lens, and may lead to prolapse of vitreous. When I had practiced this mode of opening the capsule in about two hundred cases, I varied it, not because I was dissatisfied with its results, but in order not to get wedded to one particular procedure. There is no conceivable way of opening the capsule that has not here and there been tried. The one just described is the simplest in execution, and the least injurious to the eye, but it has the disadvantage of necessitating, in the majority of cases, an after-operation, viz: the subsequent central splitting of the capsule. In order to avoid that, I have lately joined to the horizontal division a larger vertical one than I made a few years ago while practicing a T-shaped opening. A *bent needle cystotome* is introduced into the anterior chamber, and the capsule slit open from the lower edge of a middle-wide pupil, up to the centre of the corneal section. In order not to let the outcoming lens enlarge the upper end of the capsular wound irregularly, I made the horizontal incision in one case with a delicate, sharp-pointed scalpel, the point of which was inserted into the upper end of the vertical incision of the capsule at the centre of the corneal section, pushed forward toward one corner of the wound, and then, by raising the hilt, one-half of the upper margin of the capsule was ripped open. In the same way the other half was dealt with. In another case I made the horizontal incision of the capsule with the needle cystotome, which was passed first from one, then from the other corner of the corneal section through the capsule, so as to meet the upper end of the vertical capsular section. If the cystotome were passed from one end of the section to the other, it would split the first half of the capsule, but most likely not the second, for when fallen into the vertical section, it would enlarge this by dragging the capsule before it rather than cut it. The few cases thus operated on did well; the first one showed some transient adhesions of the iris to the shreds of the capsule. It remains to be seen whether a greater number of cases will yield as smooth recoveries, and better permanent vision than the other now well tried method.

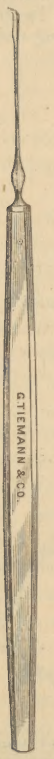

Fig. 8.

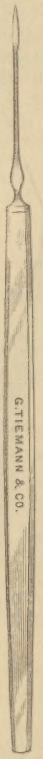

Fig 9.

"The *expulsion of the lens* is effected by pressing with a hard rubber spoon (Fig. 10) on the lowest part of the cornea.

"The *after-operation*, the subsequent central division of the capsule, is an essential feature in this mode of operating for cataract. Without it the method could not stand, as it has also virtually been abandoned by the operator who first, in 1873, tried it on a larger scale, namely, Professor Gayet, of Lyons. He made no after operations, and was dissatisfied with the imperfect visual results. The empty capsule will wrinkle and opacify, requiring subsequent splitting, in the majority of cases. But then, the visual results are permanently good, and better than by any other method, except the removal of the lens within the capsule, which, according to its warmest advocate, Dr. Herman Pagenstecher, is indicated in thirty per cent. of the patients only.* But do the methods with central opening of the capsule, even in their successful cases, commonly yield good vision permanently? By no means. With them, too, the capsule will wrinkle and opacify, and vision be reduced to a surprising degree.

Fig. 10.

"The subsequent division of the capsule comprises not only its anterior, but also its posterior half, and, therefore, gives a perfectly unobstructed pupil. The imperfect visual results, after the primary central division of the anterior capsule, have always been felt by the profession, and given the incentive to different attempts at obviating this disadvantage, among which I will mention the puncture of the vitreous, immediately after the expulsion of the lens, which Professor Hasner, of Prague, has made for many years, and which, as I saw last summer, has been adopted, on trial at least, by Schweigger. Both gentlemen assert that this procedure is not dangerous, but neither has, as yet, published statistics to convincingly support their assertion. The subsequent division of both capsules is an innocent operation; I have done it more than a hundred times. Only in a few cases the reaction from it lasted longer than a few days, and never was the vision made worse. The technique of the operation, however, is peculiar, and has to be learned. The operation requires, above all, two things, without which nobody should undertake it: first, *good artificial light*, thrown on the eye with a large lens, so that during the opera-

*On the Extraction of Cataract in its Capsule. By H. Pagenstecher, M.D., of Wiesbaden. *Archiv. f. Ophthal.* Vol. VIII, p. 243, Vol. X, p. 152.

tion every wrinkle, dot and stria of the capsule can be seen, as well as the course and effect of the needle; second, a *sharp, well proportioned scalpel needle** (see Fig. 9), with which the capsule can be cut without tearing. I first make a horizontal incision, then a vertical one, varying them, however, according to the conditions of the capsule. No aqueous should, none need escape. I have described it in the *Archives of Ophthalmology*, Vol. VIII, No. 2, p. 200, Vol. X, No. 3, p. 295.

"Now, in conclusion, a word or two on *antisepsis in cataract operations*. I have never thought much of the specifically antiseptic *substances* which ophthalmology has recently borrowed from general surgery, and I cannot yet see any reason to change my opinion. If the adherents of the antiseptic method affirm that this essentially consists in the careful observation of all the rules that secure or at least favor union by first intention, they have no warmer friend than me. Those rules are no modern revelation, and in no operation have they been more carefully studied than in the extraction of cataract. If, however, antisepsis means "bacteria-killing"—to express it in one word—and its advocates assert that all their methods and antiseptic substances employed before, during, and after the operation have this fundamental aim and object, then I think they hunt a phantom. I am far from denying the existence of micrococci and bacteria; they are on and in all open, moist tissues, though the conjunctival sac shows them less than most other places (see Wernich's instructive book, "Die Desinfectionslehre"). I do not, of course, deny the existence of infectious substances, such as blennorrhoic, even dacryocystitic, and similar secretions, as well as decomposed and fermenting bodies; but, gentlemen, these substances are but *one group of irritants*, which, as all the others, ought carefully to be guarded against. Besides them, there are plenty of mechanical and chemical irritants, which have equal claims on our consideration. The great modern dictum, "No suppuration without bacteria," which was until quite recently ardently defended, has proved untenable; even its most zealous advocates had to concede that croton-oil and other substances produced suppuration, without any coöperation of bacteria. One of the latest investigators of this subject, Dr. N. Uskoff, answers the question whether or not suppuration is possible independently of low organisms? positively in the affirmative (*Virchow's Archiv*, vol. lxxxvi, p. 150, etc., October, 1881), and does so, not from theoretical speculation, but based upon numerous experiments made by him and Professor Ponfick, at the Pathological Institute of the University of Breslau. Lister himself, in closing the discussion on this subject, at the last International Medical Congress, said: "Solid bits of dirt are the great sources of danger, rather than certain invisible particles that float in the air, and have, perhaps, been invested with more deleterious functions than they really possess" (*British Med. Jour.*, October 1st, 1881, p. 550).

* Reliable needles of this kind, as well as the other instruments, are made by Tiemann & Co., New York, and Snowden, of Philadelphia.

"The antiseptic methods which have conquered, for good reasons, the greater part of the surgical world, have also many adherents among the first names in ophthalmology. I will mention to you only Wecker, Horner, Snellen, Leber, H. Pagenstecher. Alfred Graefe, whose early paper on the subject, in Graefe's *Archives*, has made so many converts, had the mortification to see that the good results, not to say the good luck, which had attended his earliest antiseptic procedures had unaccountably deserted him later, so that he is said to have become skeptical. Horner stated, in London, that, apart from antiseptic precautions, success depended upon the most delicate execution of every step of the operation. Now, what has *experience* to say on the question of antiseptics in ophthalmology? Where are the all-important statistics to support it? They have not yet come forward. The best operators, *e. g.*, Wecker and Horner, still concede one per cent. to two per cent. of total loss by suppuration. This is a less percentage than the old flap showed, but not less than is obtained by a careful execution of Graefe's extraction, without antiseptics, and the results in this institution, for years, have been no worse. There were two cases of suppuration in the last hundred extractions I reported on. Since then, March 3d, 1880, fifty-two extractions were performed, without the occurrence of suppuration, even without the loss of an eye from any cause. Several larger series of operations, performed under antiseptic precautions, have been published (Just. Reymond and others) which are quite unfavorable. Yet this subject is still under discussion, and, though I am not prejudiced in favor of the bacteria killing contrivances, I shall not tire in giving the question how to secure healing by first intention, how to avoid inflammation in general, my undivided attention. In order not to judge of the subject without personal experience, I shall continue to give antisepsis a fair trial, until facts sufficiently numerous pronounce their unambiguous verdict. Every alternate operation in the thirty cases which were witnessed, and which were the basis of these remarks, was performed under antiseptic precautions. Though I shall have to return to this subject later, I may here state that a difference in the course of healing has not been apparent, and, if asked my candid opinion, I would say that the best antiseptic is twenty years' experience."

That we may do full justice, we quote from no less distinguished an authority than Dr. HERMAN PAGENSTECHER (*loc. cit.**) who advocates the *operation of extraction of all mature cataracts in their capsule*, and says, "Indeed, I go so far as to say that we make a great mistake—will the older operators pardon my expression?—when we operate on cataract after irido-choroiditis, or on hyper-mature, or Morgagnian cataracts, in any other way than by extraction in the capsule." He at the same time, by calling attention to an old and well established ophthalmological fact, says he lays down one important rule, which,

* Translated by James A. Spalding, M.D., Portland, Maine.

nevertheless, will bear constant repetition, *i. e.*, "cataracts which have matured rapidly, say in the course of a few months, should never be removed in the capsule, but always by opening the capsule. In some cases the capsule does not obtain sufficient strength in comparison with that of the zonula."

"One reason why (says PAGENSTECHER) this method has been so little employed is, that every one likes to continue with the operation which he first learned and practiced, and which has probably, so far, given satisfactory results; secondly, everybody imagines that it is a violent procedure to pass the flat spoon into the eye, for the purpose of removing the lens. Then it is a common opinion that loss of vitreous endangers the eye; further, we are told that we are never sure of removing the lens with the whole of the capsule; and, finally, many have never seen the operation, and hence have had no chance for deciding upon its merits from their own knowledge.

"In the first place, it is necessary for us to be sure what cases are to be operated upon by extraction in the capsule, and what cases are not. Our own (P. and his brother, the late A. PAGENSTECHER) observations, combined with a moderate degree of attention, soon throw light upon this point, and he who at first only ventures to employ the operation in the cases where it is undoubtedly the best, such as cataracts after irido-choroiditis, pronounced hyper-mature cataracts and Morgagnian cataracts, will soon gain more and more confidence in the operation, and discover for himself in what further series of cases it is indicated."

Comment is unnecessary upon this method of extraction of the lens within the capsule, which, says KNAPP, "is, according to its warmest advocate, Dr. HERMAN PAGENSTECHER, only indicated in thirty per cent. of all cataracts."

Congenital Dislocation of the Crystallien Lens; Diplokoria.

As ophthalmological anomalies, P. D. Keyser (*Archiv. Ophthal.* Vol. x, No. III) reports three cases of congenital dislocation of the crystalline lenses, in one (MEDICAL AND SURGICAL REPORTER, July 10th, 1880) aged 26, the lenses were dislocated differently but not symmetrically, as is usually the case. In the R. E. the lens was dislocated inward, and the L. E. directly upward. In the other two cases, which were also anomalies, the lenses were dislocated directly downward, entirely out of the region of the pupil. These two cases were daughter and mother. A case of *double pupil*, diplokoria, in but one eye of a lady aged 26. There was a broad band, 1½ mm. in width, running across, from margin to margin of the iris, at an angle of 110°. It extended only from the extreme pupillary edges of the iris, and was of the same thickness and color and continuous structure of the iris.

Patient had never suffered from any inflammation of the eye. As a congenital anomaly of the iris, it was rare, as occurring in but one eye. By a small incision through the cornea, in the lower and inner quadrant, K. introduced a delicate pair of iris forceps, grasped the band in its entire breadth and cut it off. Then its lower attachment was divided and the protruding iris was replaced from the corneal incision. Pilocarpine solution was instilled into the eye. No inflammation followed, the pupil became round, and the action of the iris has been good ever since.

J. J. Chisholm (loc. cit.) reports two cases of *sympathetic ophthalmia*, as a sequel to cataract extraction, and of iridectomy in glaucoma. Pain and inflammatory process promptly checked by neurotomy of the lost eye. Dr. C. makes the point, *i. e.*, *in an eye in which nerve cutting was effected, there was a complete effacing of a corneal staphyloma.*

Wm. C. Ayres (loc. cit., p. 273) in examining a glioma retinæ endophytum, mentions his discovery of a peculiarly interesting condition, viz: a *gliomatous infiltration of the lens.* The glioma cells had passed both without and within the canal of Petit, along the whole length of the suspensory ligament, up to the lens capsule. When outside of the ligament they seemed to have impinged upon the capsule and passed around it. When within they seemed to have passed directly to the lens and to have forced themselves up beneath the fibres of the ligament, as they attached themselves to the anterior capsule. Though they had not disturbed the continuity of the capsule at any other place, just under the attachment they had broken through and entered the body of the lens. *They had also entered into the body of the capsule itself, and split it into distinct layers, to a distance of some mm. from the capsular rent.*

In another case Ayres, in examining a phthisical eye (phthisical after a severe inflammation in childhood), found *bone within the lens capsule, i. e.*, "the lens was full size, normal in curvature of capsule, while at the same time the body of the lens was entirely replaced by bone. The space within the capsule was filled with true bony tissue, having a perfect system of canals and typical bone corpuscles, with the exception of a narrow zone of connective tissue, *holding the*

same relative position as the glioma cells in the case of gliomatous infiltration. Ossification had taken place in layers parallel to the connective tissue next to the capsule, and where these layers of bone were thin, it appeared as if the original fibres had ossified, but, of course, this is impossible, since the lens, being epithelial tissue, cannot ossify."

Dr. Chas. J. Kipp, of Newark, N. J., reports, in brief (*Archiv. f. Ophthal*, Vol. x, No. 3), the *Transactions of the American Ophthalmological Society for* 1881, at which Dr. Wm. F. Norris, of Philadelphia, read a paper

On the Administration of Anæsthetics in Bright's Disease of the Kidneys, and on some Cases of Sudden Death after Cataract Operations.

Two deaths. In both cases the patients were etherized; both died comatose, and, in both, careful autopsies revealed no organic lesions, except those belonging to Bright's disease. The first patient was a child five months old, and in good health, upon whom he operated by discission. The child recovered consciousness, but died soon afterward. Intense congestion of kidneys, cloudy swelling, and fatty degeneration of epithelium, most marked in the cortical portion. There was no history of hereditary disease. The second patient was a woman, sixty years old, supposed to be in perfect health. Recovery from anæsthesia was prompt. On the evening of the following day she was somewhat feverish, and the urine diminished in quantity and loaded with urates. From fourth to ninth day she sat up and felt pretty well. After that time unfavorable symptoms manifested themselves. On the sixteenth day she was delirious. On the seventeenth day urine was found to contain a small quantity of albumen, and hyaline, and fatty and granular casts. Patient died on eighteenth day after operation. Autopsy showed all organs to be healthy, except heart, in which there was moderate enlargement of left ventricle; and the kidneys, which were markedly congested, and showed increase of interstitial tissue, fatty degeneration of epithelium, and cast material in the uriniferous tubules.

In the discussion which followed the reading of Dr. N.'s paper, Dr. Mathewson, of Brooklyn, said he "had extracted cataracts, under ether, from patients known to have Bright's disease and who recovered promptly." Dr. Carmalt, of New Haven, related two cases in which death followed cataract extraction performed without anæsthetics. In one case death took place four hours after operation, and seemed to be due to shock, which might possibly have been avoided by the use of an anæsthetic; no autopsy. In the other case the patient had had diabetes, from which she had apparently recovered. Dr. C. assisted in the operation. There was no attempt at repair. Patient failed rapidly and died on fourth day. Dr. Norris remarked that the action of ether, in many cases of fatty heart, was beneficial rather than otherwise. Dr. Noyes, of New York, had used ether and chloroform freely in a large number of cases, but had not had a fatal result in consequence. He had used ether when he knew there was Bright's disease, and also in cardiac complications. He is in the habit of using bromide of potassium, and sometimes hydrate of chloral, before the operation, and thinks that in a certain proportion of cases the occasion for the use of anæsthetics has thereby been considerably diminished. It has been his practice, where anæsthetics are given, to produce simply the primary anæsthesia, make the corneal incision, and then allow the patient to fully recover consciousness, which is utilized in the subsequent steps of the operation."

(Concerning the administration of anæsthetics, especially ether, to patients suffering with any form of chronic kidney disease, there seems to be but one opinion, as expressed by all authorities, *i. e.*, that such procedure is, *as a rule, followed by fatal results*, and the weight of testimony confirms this assertion. Nay, it goes further. It condemns such administration as reprehensible, and if operators insist upon setting aside experience, and by so doing trifle with human life, it will not be long before a well-grounded suit for damages will bring some careless, or call it obstinate, administrator up with a round turn. We would deprecate Dr. Mathewson's views, if reported correctly, and so also those of Dr. Noyes, if the latter did not beg the question after saying "he had used ether and chloroform freely in a large number of cases;" "where he knew there was Bright's disease and cardiac complications," by adding, "It has been my practice, where anæsthetics are given, to produce the primary anæsthesia, make the corneal incision, and then allow the patient to fully recover consciousness." This we cannot admit as "using anæsthetics freely," or even operating under anæsthesia. In conclusion, we would warn the inexperienced, and would suggest that it will not be many years before juries will refuse to render such verdicts as exonerate the criminally careless administrators of fatal doses of anæsthetics, but they will call for post-mortem examinations of the kidneys, heart, etc., and in proportion as these are found, or known to have been, diseased will they (administrators, operators, etc.) be held responsible. T.)

Of especial interest in this connection is a paper read by Hasket Derby, M.D., of New York,

On Anæsthesia and Non-anæsthesia in the Extraction of Senile Cataract, with Comparative Statistics of 200 Cases.

The author avoided anæsthetics as much as possible. Of 200 uncomplicated cases of senile cataract 100 were operated under ether, and 100 without anæsthesia. The average age of the patients operated under ether was 67.7, without, 65.8. Loss of vitreous in fourteen with ether, and nine without. The duration of treatment was 18.3 with ether, 16.5 without. Vision, $\frac{1}{10}$ or more, was obtained in eighty-one with ether, and eighty without. Partial success (vision from $\frac{1}{11}$ to $\frac{1}{60}$) in eight cases with ether, and nine without. There was reasonable prospect of success from a secondary operation in two of the last-named operated under ether, and one without. The total failures were nine with ether, and one without. In the discussion which followed, Dr. D. B. St. John Roosa, of New York, and Dr. H. W. Williams, of Boston, thought that the advantages obtained by the use of ether were considerable.

Dr. Kipp, of Newark, thought that the danger of escape of vitreous is much greater than without anæsthesia. Dr. B. Joy Jeffries, of Boston, saw no objection to the use of ether, but does not hesitate to operate without it.

Dr. W. S. Little read a paper entitled a

Contribution to the Study of Glaucoma,

in which he gave the details of four cases, all bilateral. The patients were all under 20 years of age. Three of the cases occurred in one family. In all cases the eyes were hypermetropic, and in three of the cases the patients suffered also from hemorrhoids. In one of the cases acute fulminating glaucoma was developed twelve hours after the instillation of atropia, and some days later the fellow eye became glaucomatous. The author thinks the fact that three of his cases occurred in one family is especially instructive, as showing a tendency to heredity, and he infers, from the coëxistence of hemorrhoids in three of these cases, and in some others observed by him, that, since in both diseases textures supplied with a sphincter muscle are involved, a somewhat similar morbid action may take place in both.

Dr. Geo. C. Harlan related a case of

Congenital Paralysis of the Sixth and Seventh Nerves of Both Sides.

Patient aged 18, male; marked epiphora and slight haziness of cornea. R. S. $= \frac{20}{120}$, L. S. $= \frac{20}{100}$. The author thought that the complete paralysis of the two abducens, which are so widely separated in their course after they leave the brain, pointed to a central cause and supported the view that they arise from the same nucleus.

Dr. E. W. Bartlett, of Milwaukee, who formerly saw a great deal of

Conjunctival Inflammation after the use of Atropia,

says that since he had used Merk's preparations the difficulty had entirely disappeared.

Dr. F. Buller, of Montreal, reported a case of

Sudden and Complete Blindness after Large Doses of Quinine(?)

As the subject had just been confined, and was threatened with puerperal septicæmia, we consider the case too doubtful to mention in detail, especially as the doses of quinine (20 grains, night and morning, for two days) were comparatively small.—(T.)

Marked Narrowing of the Field, with Diminished Acuteness of Vision (Glaucoma? Kipp) Following the Use of Duboisia,

presumably due to the use of the drug, was the title of a paper by Dr. J. P. Morrell, of Terre Haute.

Dr. Noyes reported a case of

Pulsating Exophthalmus,

which differed in its history and treatment from any on record. A girl, four years ago, after some severe form of fever, was suddenly taken with a pain in the left side of the head, and about the left eye; the globe began to protrude, and within one week there was marked exophthalmus without inflammatory disturbance. For four years the condition of the eye remained substantially unchanged, except that she had occasional attacks of fugitive inflammation. While passing through Dublin, on her way to America, she had a severe attack of inflammation of the eye. On her arrival in New York she came under his observation. He found swelling of the lids, considerable ecchymosis. There was marked protrusion of the globe, and at the lower and inner angle of the orbit a projection was felt, which at first seemed to be a solid growth. Pulsation, however, was felt, and an operation was proposed. Examination under ether showed the tumor to be a distended blood vessel, which came from the orbit, forward, and returned upon a loop. A bruit was heard over the exophthalmus, but not upon the temple. Pressure upon the carotid completely stopped the pulsation, but had no effect upon the protrusion. From this he concluded that it was a purely vascular anomaly, and not wishing to perform so grave an operation as ligation of the carotid, and not being clear with reference to the diagnosis, he decided to ligate the angular artery, and to dissect down to the enlarged vessel, and tie it off. With great

difficulty he succeeded in ligating the angular artery. Then dissecting up the protruding vessel, which was as large as a good-sized lachrymal probe, he traced it down, placing one ligature after another in the vessel, and cutting between them. He demonstrated that it was a vein, which he finally ligated at the spheno-maxillary fissure. He then concluded that it was the anterior orbital vein, coming out of the spheno-maxillary fissure, and going back to empty into the cavernous sinus. The wound healed kindly. At the end of six weeks the exophthalmus had disappeared."

Contagious Ophthalmia. On Croup of the Conjunctiva, with Remarks on the Treatment of the Contagious Forms of Conjunctival Inflammation. By H. KNAPP, M.D. *Archiv. Ophthal.*, Vol. XI, *No.* 1.

The observation of so-called extreme cases is sometimes required to throw our mind away from the track of familiar views, into new channels of thinking. We then recognize the significance of certain manifestations which we failed to appreciate so long as we noticed them only in low degrees of development. Such an extreme case, from the common group of muco-purulent conjunctivitis, came under my care lately, and forced me to change my opinion of that kind of inflammation, which several authors have described as croupous or membranous conjunctivitis.

Mild cases of this affection are not infrequent. They begin under the form of acute catarrh or moderate blennorrhœa, but soon are distinguished by the formation of thin, whitish membranes, covering the palpebral portions of the conjunctiva. Under the ordinary treatment of astringents, cold applications and careful cleansing, they get well in from three to six weeks. Having seen so frequently that the membranes had no appreciable influence, either on the gravity or the course of the disease, I did not consider them as an essential feature of the disease, and classified the cases mostly as acute catarrh. Sometimes, when the discharge was more puriform than mucoid, as acute blennorrhœa.

C. S. Bull, in the third American edition of Sœlberg-Wells' text-book, devotes fifteen lines to croupous conjunctivitis, in which he says: "This form has been regarded by some English and Continental authorities as a distinct variety of conjunctivitis, but there seems good reason to doubt this. * * * The treatment consists in stripping off the membrane and cauterizing the surface, as in catarrhal or purulent conjunctivitis."

H. D. Noyes, in his recent treatise on the diseases of the eye (Wood's Standard Medical Library, 1881), devotes a page and a third to "Croupous, or diphtheritic conjunctivitis," (p. 168). Though he describes croup and diphtheria under the same title, he points out the principal distinction between the two forms of exudation, but also regards the croupous membrane as an unessential feature of muco-purulent ophthalmia.

I have changed my opinion on this subject, and concur with Arlt,* Stellwag,† Saemisch,‡ and Wecker,§ who, especially Saemisch, give clear descriptions of the disease, and state that we have to consider croup as a distinct form of conjunctival inflammation. It differs from catarrh, blennorrhœa, and trachoma, by the presence of the characteristic whitish membranes, and from diphtheria, by several points, which I beg leave especially to mention:—

1. In diphtheria the lids are very stiff and hard; it is difficult or impossible to evert them; in croup the lids are supple and soft, and can be easily everted.

2. The diphtheritic lid is unusually hot and painful to the touch, whereas the croupous lid can be handled without much pain.

3. The diphtheritic exudations are continuous from the deposit on the surface, through the superficial and deeper layers of the conjunctiva, whereas the croupous exudation is a surface deposit only.

4. The diphtheritic membrane cannot be easily removed, but must be torn off with some force, leaving the subjacent tissue pale and ragged; whereas the croupous membrane can be wiped off as a whole, leaving the subjacent tissue dark red, bleeding, and uneven—finely nodular.

5. The tissue of the diphtheritic lid when cut into is anæmic, and has, in the developed cases, a white, lardaceous appearance, whereas the tissue of the croupous lid is highly congested and soft.

6. The diphtheritic process leads to mortification of the invaded conjunctiva; the croupous process to proliferation, and cauliflower or polypoid excrescences.

7. Diphtheria readily extends from the lids to the bulbar conjunctiva and the cornea, whereas croup is long limited to the lids, and only the severest cases affect the cornea, and seem always to leave the scleral conjunctiva free.

Croupous conjunctivitis begins with the symp-

* Text-book, first edition, 1851, p. 85, and his next text-book, Klinische Darstellung der Krankheiten des Auges, 1881, pp. 16–19.

† Text-book, fourth edition, 1870, p. 423.

‡ Graefe-Saemisch's Handbuch, Vol. IV, No. 1, pp. 94–101.

§ Wecker-Landolt. Traité Complet d' Ophthalmol., 1878. Tome I, p. 320.

toms of an acute catarrh, or mild blennorrhœa, but soon characterizes itself by deposition of whitish membranes on the retrotarsal folds of both lids, extending toward the front of the conjunctiva and the free edge of the lids, as far as the so-called papillary body is found. The membranes consist of coagulated fibrine enclosing lymphoid cells in varying quantities. They may cover the palpebral conjunctiva in patches only, or as a continuous layer of 0.1 mm. to 1.5 mm. in thickness. They can be more or less wiped off, and are quickly reproduced. The surface from which they are detached is dark-red, easily bleeding, uneven, not ulcerous, but finely granular. The lid is moderately swollen, not very sensitive, and can be everted without much difficulty or pain. The discharge is sero-mucous or sero-puriform and moderate. The progress of the disease is marked by the uneven swelling of the papillary body passing over into proliferation, with the production of smaller and larger cauliflower, and polypoid excrescences. The pesudo-membranes cover all the productions, dip into the depressions and crevices of the proliferous conjunctiva, and cannot be detached without lacerating and tearing off portions of the conjunctiva, thus causing effusion of blood, which shows a high degree of coagulability. Croup, in contradistinction to diphtheria, seems never to affect the scleral conjunctiva, and only exceptionally the cornea, there producing ulcers. These ulcers may be superficial, and disappear in a short time, or become more extensive, occupy and destroy the whole cornea. From their whitish aspect and firm, even surface, which is rather raised than depressed, I am inclined to believe that they also are covered with a croupous deposit. Even in that stage they are capable of restitution, leaving an unexpectedly small corneal patch, when compared with their former size and intense milky opacity. They are complicated with consecutive plastic iritis, which may get well without adhesions or papillary obstruction.

Course.—The milder forms of the disease are not infrequent, the severest ones very rare. The characteristic croupous stage seems to follow the catarrhal initial symptoms in a few days; may last for one or several weeks, or from two to six months. When the membranes disappear they get softer, thinner, and brittle; the discharge then is muco-purulent, but still moderate, when compared with genuine blennorrhœa.

The nature of the disease consists in a swelling and proliferation of the papillary body of the conjunctiva, and the formation of fibrinous pseudo-membranes, which are interspersed with lymphoid cells and deposited on the surface, infiltrating the tissues of the lid. Its causes are those of catarrh and blennorrhœa. The disease is contagious and mostly affects both eyes. A constitutional predisposition may, perhaps, be admitted, as the catarrho-blennorrhœic conjunctivitis, which in asylums goes from one inmate to the other, only in a few assumes the croupous character. Croupous conjunctivitis, like pharyngo-laryngeal croup, is prevalently a disease of childhood. Some patients have croup of the eye and sore throat simultaneously.

The prognosis, on the whole, is favorable, the disease showing no marked tendency to affect the cornea, and, unlike diphtheria, leading to no gangrene of the parts affected.

As to the treatment, I can only concur with Arlt and Saemisch, in advising to abstain from all kinds of irritant medication as long as the formation of the pseudo-membranes is still active. Uninterrupted application, day and night, of iced compresses to the lids, and careful washing away of the secretion with a soft sponge dipped in a very weak solution of chloride of sodium, chlorate of potash, and the like, should be enforced so long as the inflammation is progressing or at its height. As soon as the swelling decreases and the membranes break off, the cold applications may be limited to an hour every morning, noon and evening, and gradually left off. Weak solutions of nitrate of silver then seem to be the best remedy, and also mild touching with the sulphate of copper crystal acts beneficially. Saemisch thinks that in a few mild cases he has cut short the progress of the disease by dusting powder of sulphate of quinine on the affected conjunctiva. I have no experience on the use of quinine in this manner, and Saemisch himself warns us not to use it in severer cases, lest the powder, acting as a foreign body, stimulate the inflammation.

I beg leave to take this opportunity for making some remarks on the utility of methodical applications of cold in the severer forms of conjunctivitis, and on the general management of these affections. They are all contagious, yet not in such a manner that an infection through micro-organisms or other substances floating in the air need be feared. Practically, the disease is transmitted only by inoculation. Under proper care, the most virulent gonorrhœal or diphtheritic inflammation of one eye is never transmitted to the fellow eye, even if left open; a fact of which I have convinced myself by hundreds of cases treated in hospital or private prac-

tice. Under proper care? What is proper care? Proper care is two skilled and trusty nurses, the one for the day, the other for the night, who never leave the patient; further, a rational physician who is not too meddlesome a therapeutist. I speak now of ophthalmia neonatorum, blennorrhœic or gonnorrhœic ophthalmia of the adult; of croupous and of diphtheritic ophthalmia; also of the acute stage or acute paroxysms of trachoma. The treatment of all of these cases is the same, and amounts to this: So long as the disease is on the increase or at its height, abstinence from all but indifferent local remedies, methodical and uninterrupted application of cold, and careful cleansing; in the stage of decline, the same treatment in milder form; in torpid and protracted cases, astringents or mild caustics.

The infant of three days and over, who has blennorrhœa, should have cold applications day and night, by means of thin iced compresses, which cover no more than his burning eyelids. Every fifteen to thirty minutes the lids should be gently separated and the secretion carefully washed out with a fine, soft sponge, dipped in a very weak solution of common salt, chlorate of potash, and the like. Several sponges should always be at hand, kept in an abundance of pure water, so as to keep them perfectly clean. There is no material equal, in softness and efficiency, to fine sponges. To see that they are free from infection is our business, and a very easy business it is, for among all the disinfectants there is one which, unshaken, has stood the test of time: abundance of water. There is no contagion that is not made harmless by sufficient dilution; contagia can all be drowned. As soon as the little sufferer shows the least tendency to open his eyes, he should be encouraged in his endeavors. Darken the room moderately, so that the influence of bright light does not make him shrink. The opening of the eye is beneficial in two ways: 1st. The movements of the lids beat the corrosive secretion out of the conjunctival sac. 2d. They accelerate the circulation in the affected parts, thus diminishing congestion, stasis, and infiltration. We know that the venous circulation in the extremities of our body is materially favored, I mean mechanically assisted, by muscular action. When a child opens his eyes, the danger is over, only a relapse must not be allowed to occur. The iced applications have to be continued, until the swelling of the lids and the creamy character of the discharge have disappeared. No child need lose its eyes from ophthalmia neonatorum, and no child does, if faithfully treated in the way just described. I unhesitatingly commit myself to this assertion, since the cases over which I had full control terminated favorably, and they count, not by the dozen or hundred, but by the thousand. Other modes of treatment may be good—and there is no doubt that certain eyes escape destruction under all kinds of treatment—but the one pointed out is capable of saving them all, and only in order not to be absolute I admit the restriction of saying, "almost all." But great and incessant care is needed. Prophylactic measures, such as cleansing the vagina before and during delivery, and washing the child's eye with weak, so-called antiseptic solutions, of which nitrate of silver one-tenth to one-fifth per cent. is the best, may be useful, and need only be mentioned. I cannot speak with the same satisfaction of the results of the treatment of gonorrhœic ophthalmia in adults, though the same plan of treatment pursued with the same rigorousness and persistency saves, as far as my experience goes, the great majority of cases. Slitting of the outer commissure, if there be great tension, is beneficial, but can almost always be avoided, since the cold keeps the swelling down. The proposition of Critchett, of London, to divide the upper lid in its centre, in order to save the cornea from destruction, need certainly not be adopted.

What good the application of cold may do in croupous ophthalmia is exemplified by experience.

In diphtheria of the conjunctiva I know of no more important remedy than the energetic and persistent application of cold. I cannot countenance the proposition of Mooren and Berlin, by warm applications to abridge the true diphtheritic stage and lead the process more quickly over into the less dangerous blennorrhœic stage, since I am convinced that nothing is so powerful in diminishing the violence of this dreadful inflammation as cold, and I am afraid that warmth may temporarily increase it and favor destruction of the cornea. I have to differ from the statement of Dr. Noyes and others, that diphtheria of the conjunctiva is a very rare disease in New York. My former assistant, Dr. Born, has taken notes of over seventy well marked cases during the three years that he was house surgeon at the Ophthalmic and Aural Institute. The great majority of those cases, as well as others in my private practice, were cured under the above plan of treatment, persistently carried out. What good the same plan, though less rigorous, may do in severe cases of trachoma, few persons who have not witnessed it would believe. A patient

may go for months, and even years, to the dispensary, and then show the usual alternation of better and worse, till a new crop of granulations, or blindness from corneal opacity, compels him to enter the hospital. He is treated with iced compresses several hours during the day, is directed to dip his face into cold water, and is admonished by every moral effort, assisted, if necessary, by mechanical appliances, to keep his eyelids open as much as possible; his lids are touched with the sulphate of copper crystal, and the improvement in most cases is very marked, not to say astonishing. In the course of three or four months I have seen trachomatous lids restored to a healthy condition, with scarcely perceptible cicatrices, and a trachomatous cornea, through which fingers could not be counted, so much clear up that fine type could be read.

What I have said is only a sketch, and if I did not trespass on your time and indulgence, I would fain say more, for I am deeply impressed with the fact that among all questions in ophthalmology—that of cataract, perhaps, excepted—there is none so important as the treatment of contagious ophthalmia."

A Case of Quinine Amaurosis Manifesting Itself Primarily in One Eye. *Arch. Oph. Vol.* XI, *No.* 1.

C. M. Hobby, M.D., Iowa City, Iowa, reports the case of a young lady, aged twenty one, in whom, for severe left supra-orbital neuralgia. Subsequently, what was supposed to be episcleritis of the left eye occurred, accompanied by conjunctival injection and œdema of the eyelids. The neuralgia being considered malarial in character, was treated with large doses of quinine, and fomentations of belladonna were applied to the eye. "Large doses of quinine were required, to produce cinchonism. Patient was anæmic, and on ophthalmoscopic examination, both before, and still more markedly after, the administration of quinine, ischæmia of the retina was noticed.

"At the time the patient came under my observation she presented an anæmic appearance, had very little appetite, and was still suffering from occasional attacks of neuralgia. There was no injection of the conjunctiva or sclerotic; the right eye was apparently normal; in the left eye the pupil was widely dilated, and not appreciably affected by light. Right eye $= \frac{16}{xxxii}$; Left eye $= \frac{3}{cc}$. On the fourth day following she returned with both pupils dilated to the utmost. R. $\frac{16}{cc}$; L. $\frac{3}{cc}$. At this time she reported that the left eye began to get worse upon her return home, but she noticed no trouble with the right eye until the previous day.

"Recognizing the probable existence of quinine amaurosis, Dr. Hobby commenced the use of strychnia hypodermically, increasing the quantity each time, until the physiological effects were apparent. The improvement was rapid, and in ten days the acuteness of vision had returned from $\frac{6}{cc}$ to $\frac{16}{xx}$ for both eyes, and the visual field of each eye, which had been reduced to about one-tenth of the normal, had doubled. During the use of strychnia the malarial symptoms disappeared, and the general physical condition improved. Six weeks later the acuteness of vision was unchanged and the visual field much increased in extent, but still less than half the normal.

"The inference to be drawn from this case would seem to be that the toxic effect of quinia primarily manifests itself in a single eye."

(As there were symptoms of an episcleritis and supro-orbital pain of the left eye, and as belladonna had been used and the light had evidently had an irritating effect upon the retina of that eye, we would prefer to infer that in one congested, if not inflamed, eye of a pair to be affected by poisonous (toxic) doses of quinia, amblyopic symptoms are primarily manifest in the weaker eye of the two, both of which *must* sooner or later participate in the toxic amblyopia. T.)

H. Derby, M.D., of Boston, reports (*Arch. Oph.* Vol. XI, No. 1)

Three Cases of Hydrophthalmus Treated with Iridectomy,

which he prefaces by the following remarks:—

"Cases of hydrophthalmus, cornea globosa, are as rare as they are unpromising. In the record of twenty years' practice I found but five instances of this disease. The only treatment seriously proposed has been iridectomy; and the encouragement to the performance of this operation has been given on grounds that are mainly theoretical. Instances of its performance have rarely been published. In his monograph on the subject,* written in 1869, Muralt states that he is not aware of any results having yet been recorded, and gives, himself, the notes of a single case. He admits that the operation is, in this disease, attended by unusual danger as regards healing and the chance of hemorrhage. And Schmidt, writing in 1877,† says "The secondary glaucoma which complicates cornea globosa (hydrophthalmus congenitus) offers a poor prognosis for iridectomy. Besides the danger of cyclitis, which may be easily excited by this operation, there are perilous possibilities of purulent infiltration of

* Über Hydrophthalmus Congenitus. Zürich, 1869, p. 50.

† Graefe-Saemisch, Handbuch der gesammten augenheilkunde, vol. v, p. 136.

the vitreous, or of choroidal hemorrhages. When in these cases the rapid increase of intra-ocular pressure renders some kind of action necessary, it is best to try the effect of repeated paracentesis, which is certainly free from danger."

As we stated in the outset, the disease is very rare. Operations for its relief are, however, so much rarer, and so infrequently reported, that these cases here cited may well serve as a basis for generalization. They show that iridectomy, undertaken at a late stage of the affection, is liable to be complicated by hemorrhage, and to leave the eye in a state of chronic and painful irritation. But it cannot be denied that the disease is arrested, and that an amount of vision that was rapidly becoming extinct is spread over a series of years, to the great comfort of the patient. Case one had already lasted 14 years, and there was distinct optic-nerve atrophy at the time of the operation. Case two at least ten. Case three was taken in an early stage, and the disease at once stayed. Eleven years have elapsed and no progress is manifest. I feel, therefore, justified in dissenting from the writer in Graefe-Saemisch, and in advising iridectomy."

Dr. J. L. Thompson, of Indianapolis, Indiana, records some "Practical Remarks on the Extraction of Foreign Bodies from the Iris."*

In the December number of the *Archives of Ophthalmology*, Vol. x, No. 4, Dr. Hirschberg, of Berlin, in his article on the

Extraction of Chips of Iron and Steel from the Interior of the Eye,

quotes from the London *Lancet*, as follows:—

"On May 18th, 1859, a girl, aged fourteen, was brought to St. Mary's Hospital, under the care of Mr. White Cooper. The previous day, while standing near her father, who was turning a piece of hardened iron in a lathe, a chip struck her left eye, which had since been in constant pain, though the sight was not materially affected. The chip was sticking in the iris, almost midway between its upper border and the pupil. The anterior chamber was full, and there was no mark of entrance in the cornea. . . . . Mr. White Cooper, fearing that difficulty would arise in grasping the smooth metal with forceps, suspended as it was in the loose membrane, decided on trying the effect of a magnet. The iris having been brought under the influence of atropine, whereby the foreign body was drawn near the margin of the cornea, the patient was chloroformed, and a cataract knife was passed through the cornea opposite the chip, and a sufficient opening made for its escape. A magnet was then applied to the wound, and in an instant the chip leaped from its situation in the eye and attached itself to the magnet. . . . . The eye was well in a week."

To the majority of the readers of the *Archives*, doubtless, the report of this case without comment will do no harm; but to the inexperienced it is likely to work immense mischief, by causing them to use atropine in similar cases. Yet we think that the end by no means justified the means used. The following case will show what dangers attach to the use of a mydriatic where foreign bodies lie in the anterior chamber.

W. F., aged 40, came to me in 1875, two days after the receipt of an injury to his right eye while hammering the iron hoop from a paint keg with the blade of a hatchet. A small piece of either the hoop or the hatchet flew into the eye, passing through the cornea and lodging in the stroma of the inner lower portion of the iris, midway between the ciliary and pupillary margins. The corneal wound had entirely healed, leaving scarcely a trace of opacity. His vision was good and he suffered but little pain. I proposed removing it, with probably a small portion of the iris, but he went off, promising to return shortly. I saw nothing of him for two days more, when he presented himself again, with the iris fully dilated and the body forced into the lens. I asked him how he came to use the atropine, and he replied that he had been reading "Gunn's Domestic Medicine." A well-marked opacity of a portion of the lens so obscured the metal that it could not be seen. Of course, I did nothing further than to watch and wait further developments. The last time I saw him, which was about two months after the injury, the lens was almost totally cataractous, with no inflammation remaining. He then passed from under my notice.

In the above case, by sacrificing a very small portion of the iris, he could have been given useful vision, and probably even without said sacrifice; but after the use of the atropine the body was forced through the delicate iris, the lens wounded, and now, of course, if anything is done it must be the removal of the lens, a very questionable operation where the other eye is not aphakial.

How would atropine have acted in the following case?—

White, Joseph, aged 28, a stone cutter, was wounded while dressing a stone with hammer and chisel, Jan. 31st, 1880. He immediately went

* To those of our readers who are settled in either a manufacturing or a mining district, we would call especial attention to Dr. Thompson's eminently practical remarks and valuable hints on the use of atropia. C. S. T.

to a "Surgical Institute," where, he says, they worked on him every day until he came upon me, on Jan. 5th, 1881, when I found a foreign body lodged on the upper pupillary margin of the iris, about three-fourths of it upon the iris and the remainder hanging over and into the pupil. I placed him under chloroform, made a section of the cornea at its junction with the sclerotic, and removed the body, with a small portion of the iris, without any difficulty whatever, before the class, at our City Hospital. The operation was made on Saturday, and he read in the presence of the class on the following Wednesday. Now, had one used a mydriatic in his case, the body would as surely have been stripped off of the iris and against the lens, as was the foreign body forced through the iris, in the case above mentioned.

I have simply reported the two cases to show the danger of the use of atropine where bodies are imbedded in the iris. Many others, where percussion caps and pieces of iron have been so placed, have I, as well as all other eye surgeons of experience, had to do with, but their mention in detail would be unprofitable and superfluous."

Rupture of the Eyeball in its Posterior Hemisphere, from a Blow in the Face (*loc. cit. p.* 45).

By Julian J. Chisholm, of Baltimore.

The two cases of recent occurrence which I here report, although novel in my personal experience, would not have had publicity beyond the staff of the Presbyterian Eye and Ear Charity Hospital, before whom the diagnosis was made and verified after extirpation of the destroyed eyeballs, had I not found in a recent work on "Injuries of the Eye," by Ferdinand Von Arlt, a recognized authority on such matters, the following passage. I make the quotation from a translation of the German work by Dr. Chas. S. Turnbull, an American publication.*

A paragraph on page 37 reads as follows: "Cases of rupture of the sclerotic are not rare. Such rents extend, without exception, to the ciliary body, even through it. Of ruptures in the posterior and sclerotic area, only one case is recorded (by Bowman), and here the rupture was not recognized until after the eyeball had been enucleated."

From the same work I make an extract from pages 22 and 23: "When a foreign body impinges against the eye with a certain degree of sudden force, and, on account of certain physical properties, such as size, bluntness, etc., cannot perforate its tunics, it expends this force by contusing the surface against which it strikes, or it causes either flattenings or indentations, the degree or extent of which depend on the character of the injuring surface, while, in the moment of injury, perhaps, no movement of the eyeball, as a whole, takes place. Now, an indentation or flattening of the eyeball cannot plausibly be considered possible, unless the same also changes its form *in toto*. Suppose we consider the point attacked as the pole, and the direction of the attacking force as the axis of a sphere; then the equator of the latter must become longer at the moment of the injury. Any resistance at the opposite wall, especially if distributed over an extensive area, will only serve to increase this change of form. The occurrence of a gap in such a wall, or of a projection upon it, will, when the globe is pressed against, produce a localized bulging—in the former case corresponding in shape and dimensions to the gap, and in the latter to an indentation or perforation of the sclerotic; *but such conditions hardly, if ever, occur.*" Sclerotic rupture is of *rare or non-occurrence* in those very localities where choroidal rents are most frequent." Again, from page 27: "The constant parallelism of the sclerotic rent to the corneal margin has an additional reason in the histological fact that the fibres of the sclerotic coat run parallel to the latter, within the confines of the ciliary region." Again, at page 38, "The sclerotic rent is linear or slightly arched, more or less serrated, and usually runs parallel to the limbus cornea, at a distance from two to five millimeters from the latter. In one case only (Schrœter, *Klinische Monatsblätter*, 1866, p. 248) did the rent run at an acute angle."

The following extract is made from a standard work on

Eye Injuries,

by George Lawson, F.R.C.S. "The split in the sclerotic is almost invariably near the margin of the cornea."

Case 1.—N. L., aged 27, was struck in the left eye with a chair, during a drunken broil. He was knocked down insensible, and had his nose and brow badly cut. When he came to himself he was taken home. In the meantime the eyeball had become very prominent, from swelling. He complained of great pain in it, and also of loss of sight. He was brought to the Presbyterian Eye and Ear Charity Hospital, for treatment, on the day after the accident. I found the eyeball very protruding, with lids much swollen and firmly stretched over the projecting ball, which was half exposed. The conjunctiva was much discolored with blood extravasation, and was chemosed in a heavy fold, parallel with the free border of the lower lid. When the lids

* "Injuries of the Eye and their Medico-Legal Aspect," by Ferd. Von Arlt, M.D. Translated by permission of the author, by C. S. Turnbull, M.D. Published by E. Claxton & Co., 930 Market St., Philada.

were drawn apart the eyeball protruded so conspicuously as to show the whole anterior half of the sphere, and presented the condition known as paraphimosis of the eyelids. When thus exposed, the whole front of the eyeball was entire, apparently without any injury to its outer walls. The anterior chamber was full of blood, and there was no perception of light. I was induced to palpate the eye, and found its tension decidedly minus. It was so soft that the cornea could be corrugated, a condition that could not exist in connection with the intra-ocular hemorrhage without a giving way of the eyeball and the escape of some of its contents. Upon this diminished tension and excessive blood extravasation, with great prominence of the eyeball, I diagnosed laceration of the posterior hemisphere of the sclerotic. To prevent future suffering, I advised enucleation, which operation was satisfactorily effected, under chloroform. After making the conjunctival section around the cornea, the opening of the capsule of Tenon to reach the tendon of the external rectus muscle allowed the escape of a quantity of dark fluid blood, and indicated the location of the scleral opening, which an examination of the eyeball after its removal confirmed. The rent, which was a large flap, opening in the outer wall of the sclerotic, was located in the posterior hemisphere of the eyeball, between the insertions of the external rectus and the oblique muscles. The source of hemorrhage was choroidal. The blood, after filling the eyeball and displacing the lens and vitreous body which had escaped through the sclerotic rent, had freely effused itself into the orbital space, and by excessive infiltration had caused the extrusion of the eyeball.

This was the first case that I ever diagnosed, in the absence of any visible wound, as posterior laceration of the sclerotic coat of the eyeball, as I was surprised at the facility with which the diagnosis could be made. The eyeball, full of blood, with excessive extravasation under the conjunctiva, and accompanied by marked minus tension, made the diagnosis very positive, of escape of some of the eye contents through a wound concealed from view.

I had been very much surprised, on previous occasions, at the amount of bleeding which could take place from a sclero-choroidal wound. In one, a case in which the eyeball had been perforated by a fragment of iron over the insertion of the superior rectus muscle, I had much difficulty in checking the profuse bleeding from the wound, which saturated thick compresses. I was, therefore, quite prepared for the excessive extravasation in this case. The accident just reported, of posterior scleral laceration, was from a blow received, through the lid, upon the elastic eyeball, resulting in the giving way of the eye-coats at a point nearly opposite to that upon which the blow fell; clearly a case of laceration by counter stroke, and at a point where the eyeball is well supported by muscles as well as by the fatty cushion of the socket.

This accident was the sequel of a Christmas frolic. In accordance with the experience of every surgeon who finds rare cases running in company, the day after New Year another case of eye injury, nearly similar in its results, was brought to the hospital dispensary for treatment.

Case 2.—I. F., aged 23, was wounded in the right eye, under the following peculiar circumstances: He and a friend were discharging pistols at a mark. While the patient was loading his revolver, his companion, standing near him, fired at a stone lying on the ground some ten feet in front of them. With the report of the pistol the injured man cried out that he had been shot, which remark caused much merriment, from the apparent impossibility of such an accident, as the shot had been fired away from him. Blood was seen, however, upon his face, oozing from a wound in the upper lid. The eye immediately commenced to swell. He complained of great pain, and said that his sight was knocked out. I saw him the day after the accident. The eyeball was very prominent, with excessive ecchymosis of the conjunctiva and with the anterior chamber full of blood. The pistol ball, in rebounding backward from the stone, had struck the lid, but not with force enough to penetrate. The skin of the upper lid only was broken, and from it the blood had escaped. The eyelids were much stretched over the protruding eyeball, and a fold of discolored, chemosed conjunctival tissue seemed to fill up the palpebral cleft. I elevated the lid upon a retractor, and found that there was no wound in the front of the eyeball, and yet upon palpation I found the tension very much diminished, so that I could corrugate the cornea. With the case of a week before fresh in memory, I did not hesitate to make the diagnosis of posterior rupture of the sclerotic coat of the eyeball, and recommended immediate extirpation of the destroyed and painful organ, as the quickest means of obtaining relief from suffering and safety for the other eye. Under chloroform the eye was enucleated. The eye-shell was found full of coagulated blood. Its normal contents had escaped through a large rent in the upper part of the ball, which opening extended backward from the insertion of the superior rectus tendon. The tendon of the muscle restricted the laceration to the posterior hemisphere of the eyeball, and prevented the wound from being seen when the eye was examined, before the operation.

The laceration seemed to have started from the point of the eyeball upon which the blow impinged, and had extended directly backward. An explanation for this rare accident may be found in the fact that when the injury was received the wounded man was loading his pistol, and was looking down toward his hand. He, therefore, had not only the eyeball well covered by the upper lid, but in the extreme downward movement of the eye a large part of the upper hemisphere was rotated forward and exposed to receive the blow. The pistol ball must have been somewhat spent, as it only broke the skin of the lid; but the blow

was sufficiently sudden and sharp to indent the eyeball to splitting, and thereby make the rent through which the contents of the eye were projected into the socket and incarcerated within the cone of muscles.

These two cases, while rare accidents, at least as far as the establishing of a diagnosis is concerned, differ in the immediate cause of the rent. In the first case the laceration in the eye-coat was not in a portion of the eyeball brought immediately under the influence of the blow. When the man was struck in the face by the chair, the bruised temple, brow and nose indicated that the blow was received directly across the eye, upon its front, through the medium of the lids. The common seat of laceration near the corneo-scleral juncture did not yield, although this was nearest to the surface receiving the blow. When the sudden flattening of the eyeball took place the rent occurred near the opposite pole of the eye impinged upon. In the second case the rent started at the point receiving the blow, and extended backward in the direction of the posterior pole, and at right angles to the so-called circular laceration around the corneal periphery.

Serious Effect of Calomel upon the Eye.

F. C. Hotz, M.D., of Chicago (*Archiv. Ophthal.*, Vol. XI, No. 1). In November, a railroad employé, aged thirty-eight years, consulted me for an affection of his right eye, which resembled, in every feature, an extensive burn of the ocular conjunctiva. The eyelids were red and swollen, especially the upper one, so much so, that the eye could be opened but very little. The conjunctiva of both lids were very red, succulent and roughened by enlarged papillæ. The retro-tarsal portions of the conjunctiva protruded in two thick, succulent folds when the lids were everted; and the ocular conjunctiva was also intensely red and swollen, so that its limbus pro jected considerably over the surface of the cornea. But what attracted my attention the most was a large, white crescent in the lower half of the ocular conjunctiva; its convex border reached down to the lower retro-tarsal fold; its concave border was parallel to and about 4 mm. from the margin of the cornea. The horns of this crescent extended upward around the sides of the cornea, and tapering off gradually, terminated in sharp points in the upper half of the eyeball. The surface of the crescent was markedly depressed below the level of the surrounding conjunctiva, and exhibited the whitish, dry, bloodless appearance of mortified tissue, which we usually find after a severe burn of the conjunctiva.

The lustre and transparency of the cornea were not disturbed; the iris, however, was discolored, the pupil was contracted, and dilated very irregularly, under the influence of atropia, on account of numerous fine synechiæ.

Upon inquiring into the origin of this peculiar affection, I received the following information: The patient's habits always had been very regular; he never had gonorrhœa or syphilis, and never had sore eyes.

The present trouble began two weeks ago, without any known cause, with swelling of the eyelids, redness of the eyeball, photophobia, profuse lachrymation, and some pain in and about the eye. He took some medicine internally (which, according to the prescription, contained quinine and morphine), but no medical application of any kind was made to the eye until two days ago. On that day his physician prescribed powdered calomel, which the patient's wife dusted into his eye by means of a camel's hair brush. He could not say how much calomel was thrown in the eye, but the application caused considerable pain, increased the flow of tears, and the tumefaction of the lids, and on the next morning his wife discovered on the eyeball a large white patch which, as she very positively asserted, was not there when she applied the powder on the preceding day. Under proper treatment, the iritis subsided quickly, and after the elimination of the eschar the extensive defect in the ocular conjunctiva was closed by cicatrization. At the expiration of three weeks the eye had recovered a normal appearance, with a regular and mobile pupil; the only evidence of the past trouble was a callous white scar in the ocular conjunctiva, below the cornea, with linear extensions around the sides of the cornea.

Remarks.—From the history of this case it is evident that originally the trouble was an acute iritis, with an unusual degree of chemosis. Upon a grave error in the diagnosis, calomel was prescribed, and its local application was followed by the lesion in the ocular conjunctiva so directly that the existence of a causal relation seems very probable. If the patient had been taking iodide of potassium, there would have been nothing remarkable in the unusually violent action of the calomel; for we know that under these circumstances it is converted into iodide and bichloride of mercury. But, as the patient had only taken a quinine mixture, I suspected the calomel was not chemically pure, the more so, as it was not obtained at a first-class drug store. The chemist who examined the calomel for me reported the presence of considerable free hydrochloric acid; and to my further question as to the chem-

ical changes such calomel might possibly suffer in contact with the lachrymal fluid, he replied that at the temperature of the human body chloride of sodium can convert a little calomel into bichloride of mercury, and that this alteration is greatly favored by the presence of free hydrochloric acid. The production of corrosive sublimate, of course, explains the caustic effect. When the calomel was dusted in the eye, I think the cornea was probably turned upward, and the powder was sprinkled on the lower portion of the chemotic ocular conjunctiva, and afterward rubbed into it by the pressure and movements of the swollen eyelids. This would account for the fact that the cornea escaped unscorched, and that the caustic action was most severe upon the more dependent portion of the ocular conjunctiva.

Two Cases of Malignant Tumor of the Sphenoidal Cavities, Implicating Vision.*

(*loc. cit. p.* 52) Julian J. Chisolm, M.D., Baltimore. "Within eighteen months two cases of malignant disease, supposed to have originated in the sphenoidal cells, have come under my observation, making four cases of this serious lesion which I have seen in the past ten years. In both of these last cases the disease seemed to have started on the right side of the bone, at the base of the skull. The eye complication was recognized as of post-ocular origin, and the lesion was located about the Sella Turcica, on account of the ophthalmoscopic appearances of the discs and the disturbed action of the eye muscles. In both cases the left eye became secondarily involved, both as to the functions of the optic nerve and the action of the muscles moving the eyeball. In each case the nose implication was subsequent to the eye trouble. The first action of the growth in its malignant development was to invade, by bone expansion, the optic foramen at the apex of the orbital cone, and impress the structures passing through this opening, then slowly involving contiguous parts, until both sides of the skull about the median line became affected. In both cases progress was slow, requiring many months for development. In each, treatment was unavailing to stop the steady growth of the disease, until one succumbed to the general poison, and in the other, life seems to be rapidly ebbing away amidst severe torture, which morphia in large doses and frequently repeated can scarcely mitigate. One case was in a boy 7 years of age, the other in a member of the medical profession aged 37 years.

"While the two cases have this in common, viz., a malignant growth at the base of the skull, destroying sight, then developing in the direction of the face, filling the eye sockets, pushing out the eyeballs, invading the nares, and exhibiting a striking similarity in the disfigurement produced, there are symptoms peculiar to each. The youth suffered no pain whatever when the disease was making rapidly fatal progress; the older patient, on the contrary, has suffered severely from the very beginning of his trouble, and the intense agony of his every-day life has shown no mitigation. The younger case commenced with nausea and vomiting, with headache, before any other symptoms could be detected. When attention was called to the eye, for the rapid deterioration of sight, the cerebral symptoms of nausea and headache suddenly passed away. They did not return, although for sixteen months the disease, in its anterior development, filling up the face cavities with its cancerous growths, steadily progressed to a fatal issue. In the elder the nausea with vomiting appeared among the last symptoms, when sight had already been nearly destroyed, and when prominent growths were developing in the temple and in the roof of the mouth. In both cases the mind remained clear throughout. In both the disease extended from the right to the left side. In neither case was there any general paralysis nor any evidence of extensive encroachment by the growth in the direction of the cranial cavity. The loss of smell was secondary to that of sight in the youth, while it was retained in the older case, even when the disease had invaded the left orbit and had reduced vision in this eye to recognition of large objects, sight in the right having been utterly destroyed by pressure on the optic nerve. The youth suffered from an external squint with ptosis, the older with internal squint followed afterward by ptosis. In both the drooping of the lids of each eye became prominent."

A little more than a year after the time of the boy's first visit to Dr. Chisolm, he received a letter from his family physician, announcing the death of the boy. From this letter the following extracts were made: "Death apparently came from exhaustion and septic poisoning. The eyeballs protruded excessively, in hideous deformity. Bleeding, fungous masses protruded from each nostril, and also could be seen behind the palate. These emitted a most offensive odor. His hearing was only implicated a few days before his death. The most wonderful part, to me, was the total absence of all pain. I was not able to make a *post-mortem* examination."

* See another case by Chas. S. Turnbull, M.D. *Transactions* Philadelphia Co. Medical Society, Sep., 1882.

Tumor of Lachrymal Gland.

By Joseph A. White, M.D. (*loc. cit. p.* 62).

As tumors of the lachrymal gland are not very common, these few notes from my case book, in relation to the successful removal of such a growth, may be of some interest.

Mrs. E. Pye, a German lady, 60 years of age, has had a gradually increasing swelling at the outer part of the left upper eyelid, for more than a year. Of late its increase has been more rapid, the eye being pushed down and toward the nose, so that it is now (May 1, 1881), difficult to close the lids over it. At times the eye is quite painful and tender to the touch, is inflamed, and has a constant muco-purulent discharge. V = $\frac{20}{200}$ both eyes, with + $\frac{1}{8}$. R. V = $\frac{20}{20}$ with + $\frac{1}{10}$. L. V = $\frac{20}{50}$. Ophthalmoscope shows left optic nerve to be quite reddened, with hazy outline and large tortuous veins.

The case was evidently one of lachrymal gland tumor. On May 13th I removed the tumor through an incision made along outer third of edge of orbit, just below the brow. It was dissected out with probe-pointed bistoury and scissors. It was firmly attached above to the periosteum and below to the conjunctiva, and extended far back into the orbit, pressing upon the optic nerve. It was removed intact; was ovoid in shape, measuring one and a quarter inches in its long, and three-quarters of an inch in its transverse diameter.

Very little bleeding followed the operation. The wound was closed by stitches, leaving a small drainage tube at outer angle.

Though there were considerable ecchymosis and swelling of the eyelids and cheek, the wound healed kindly, and required little after treatment. Three weeks later it was entirely healed; the eye had returned to its position, its movements were free, the vision the same as before the operation, and the lid drooped slightly.

It is now six months since the tumor was removed, and the most careful examination can detect no signs of a recurrence; the eye and lids are perfectly normal, both in appearance and motion, and the vision has improved to $\frac{20}{20}$ with + $\frac{1}{10}$. My friend, Dr. Swan M. Burnett, of Washington, D. C., who, during the meeting of the American Medical Association, had examined the case, requested me to send him the tumor for microscopical examination when I should remove it. I sent him the specimen, and am indebted to his kindness for the following description of the tumor:—

Microscopic appearances, by Dr. Swan M. Burnett, Washington, D. C. The tumor is far from uniform in its histological structure. The connective tissue element is rather abundant in some parts, while in others it is very scant or entirely wanting. The cellular element, which is largely predominant, is likewise irregular in its distribution. It consists of rather large, round cells, with very thin cell walls, and large, granular nuclei. There are other cells, smaller, with small or no nuclei, which are distributed in somewhat large collections throughout the tumor mass. The characteristic form of myxomatous tissue is seen in abundance in all parts of the specimen. Cylinders and alveoli lined with cells in the characteristic arrangement of adenoma are met with, particularly near the centre of the sections passing through the tumor in a transverse direction. The remains of those structures are quite abundant, but in only one or two places have I been able to find them entirely intact and in anything like a normal condition. The alveoli are often filled with a hyaline mass (Becker), less frequently with round cells or granular matter.

From these appearances I think we are justified in describing the tumor as a myxo-adeno-sarcoma. From an examination of this specimen alone it would not be possible to trace a general history of such tumors, but it tends to confirm the opinion of Becker* that all the forms of tumor of the lachrymal gland hitherto described are but different stages of the same morbid growth. It seems likely that they all begin as adenomas and that the various forms of degeneration—myxomatous, sarcomatous, colloid, encephaloid, etc.—come on later. The appearances in this specimen differ from that of Becker's in this, that the degeneration was greatest toward the periphery, while in his the periphery appeared the more nearly normal.

Systematic Report on the Progress of Ophthalmology During the Third Quarter of the Year 1881.

By H. Magnus, M.D., *Archiv. Ophthal.*, Vol. xi, No. 1, under the head of General Ophthalmological Literature.

W. Sykes. *Clinical note and remarks on a Disease of the Eyes Peculiar to Colliers* (*Brit. Med. Journal* xlii, p. 77, July 16, 1881). The sight first fails in bad light, and grows gradually worse, till the pupils are dilated and insensible to light, and only a perception of light remains, while nystagmus is well marked. Recovery takes place on exposure to light and air, without other treatment. The miners attribute the disease to the bad light given by the safety

* Ueber, das Adenom der Thränendrüse. Bericht über die Augenklinik der Wiener Universitat, 1863-65.

lamp, but Sykes believes it to be toxic, from gases accumulating in the pits.

Fialkowsky. Ueber den Einfluss russicher Bäder auf das gesunde und kranke menschliche Auge. (*On the influence of Russian baths on the healthy and the diseased human eye.*) Wratsch, 1881, No. 9. The influence upon diseased eyes is greater than on healthy eyes. After the bath the pupils are somewhat dilated, or react sluggishly; both the far point (?) and the near point are slightly removed from the eye; the range of accommodation is, therefore, somewhat diminished. Visual acuteness suffers no change. Moreover, after the bath, conjunctival and retinal hyperæmia occurs; the secretion of mucus and tears becomes increased. Any inflammations present are intensified.

Gunn, R. M. *On the Continuous Electrical Current as a Therapeutic Agent in Atrophy of the Optic Nerve and in Retinitis Pigmentosa* (*Roy. Lond. Ophth. Hosp. Rep.* vol. x, pt. 2, p. 161, June, 1881). 1. In optic atrophy, Weiss' continuous current battery (the Foreaux-Smee; the elements are zinc and platinized silver), of 25 cells was the instrument used. The positive pole was placed on the closed eyelid, and the negative applied to the supra-orbital region, the top of the spine, and to a point just behind the mastoid process, in order to determine which position gave the greatest light impression. Five or seven cells were only employed at first. The supra-orbital region was the point selected in the majority of cases. The position of the poles was changed during the sitting, which lasted from five to six minutes. Of the eighteen cases thus treated, six improved, four were doubtful, and eight did not improve, or grew worse. Two of the six cases which improved returned some time afterward, with their sight as bad as before, and did not improve under further treatment. No really conclusive results were obtained, because of the smaller number of the cases, and the fact that this was not the sole method of treatment, as iodide of potassium, or strychnia, or other nerve tonics, are noted as having been given in all the cases but one.

Gunn considers, nevertheless, that when we compare the above results with those obtained where no galvanism has been employed, there must be a strong presumption in favor of its utility in certain cases. He is skeptical of the efficaciousness of iodide of potassium, and looks upon strychnia and the other nerve tonics as possibly of some use when combined with good food. He gives an analysis of the cases with reference to the question of prognosis, and the conclusion he arrives at is, that "he should give the most favorable prognosis when the patient is young or middle-aged, with recent failure of sight and present ability to count fingers, at least. Color-perception is possibly defective. The disc is white, but the large vessels are of normal size. There is no history of severe injury to the brain or spinal cord, but perhaps there are symptoms of locomotor ataxy.

Retinitis Pigmentosa.—Of the value of galvanism in this disease Gunn speaks hopefully. He reports four cases, in each of which there was a decided improvement. In case 1, the patient's condition on admission was, Right eye, V = fingers at 3″; Left, V = $\frac{20}{70}$ with 36″; and when discharged; Right, V = $\frac{20}{70}$ nearly; Left, V = $\frac{20}{40}$ nearly. Gunn refers to the literature of the subject, and draws attention to cases reported by Neftel and Dor, in which there was marked benefit by this treatment. He considers that the continuous current is capable of stimulating the conductivity of the optic nerve, both as regards the electrical current and the current originated in the impression produced upon its end-organs by means of light, and that this counteracts the degeneration of the nerve tissue which follows the absorption of light by the pathological pigment deposits. The defective blood supply also tends to produce further degeneration, and possibly galvanism has a temporary effect in dilating the blood-vessels, and so improving the nutrition of the tissue.

The caution to be observed in using the remedy is to begin with a weak current of five or seven cells for a short time, and then gradually increase if necessary.

(While observing the caution Gunn has just named, and after using the constant current in the same manner he has indicated, *i. e.*, as regards the position of the poles, I have, in specific paresis of the pupil and the forms of "neuritis optici," usually following these pareses, had decidedly satisfactory results in the way of making cures. I now consider electricity as an indispensable therapeutic agent in ophthalmology. With the positive pole on the closed eyelid, the negative pole on the top of the spine, I seldom employ more than five to six cells, and rarely excite more than the blue (weak) light impression, and if improvement be characteristic the light impression will change to white and yellow. T.)

The Laws of Inheritance in Relation to Disease. Lecture IV, delivered by Jonathan Hutchinson, at the Royal College of Surgeons of England. (*Medical Press and Circular*, Vol. XXXII, p. 22, July 13th, 1881.)

In his fourth lecture on "Laws of Inheritance," *Jonathan Hutchinson treats of heredity of retinitis pigmentosa.* It rarely appears at birth, though he believes the tendency to it to be present, but it shortly develops and increases with age. Consanguineous marriages tend to strengthen the predisposition to the disease, and Liebreich has found it to be very common among Jews. Retinitis pigmentosa is allied to certain forms of choroiditis and to disease of the optic nerve. In retinitis pigmentosa the choroidal structure is interrupted and the retina is gradually obscured by a dense pigmentary deposit. The vessels shrink, and when once the series of events is established, it pursues a certain and inevitable course to the end. He then refers to the tendency of defects of the optical structure of the eye to be transmitted and become hereditary, and quotes cases in point, *e. g.*, myopic families. He further says: functional changes once duly fixed by pathological changes are transmitted from individual to individual, and that which at the outset ranked only as an idiosyncrasy may by and by develop into a determinate disease. An instance of this is afforded by a form of amaurosis due to the excessive tobacco-smoking, the tobacco here acting not as the actual producing cause of the disease, but as an excitant of the tendency to defect when once originated.

Michel Jul. *Affections of the Eye from Disturbed Circulation in the Carotid.* (*Beiträge zur Ophthalmologie. Festgabe zur Feir des 25—jährigen Jubiläums von Horner. Weisbaden*, 1881.) If a carotid artery be compressed in man, a paling of the papilla of the corresponding side, a fainter column of blood in the arterial vessels, and a diminution in width of the venous retinal vessels, may be observed for a short time. This stage passes quickly, and great venous stasis and absence of venous pulsation show themselves. A similar venous stasis of the retina is visible when one arm is stretched upward. Ligation of one carotid is followed, immediately after the operation, by complete arterial and venous anæmia; later, by filling of the collateral channels; but a venous hyperæmia persists, on account of the diminution of arterial pressure.

This alteration is observed in the eye corresponding to the ligated carotid. In the venous system of the side opposite to the ligated vessel, a stronger rhythmical pulsation can be seen. Atheroma of the carotid is in intimate relation with opacities of the lens; the so-called senile cataract, as well as unilateral cataract with unknown cause. finds in this a satisfactory explanation. (*Arch. f. Ophthal.*, Vol. xi, No. i.)

Noyes. *Cure of Cataract by Electricity.* (*Amer. Ophth. Soc.*, at Newport, 1881, July 27th, 28th.) A seeming cure of cataract by electricity proved to be a case of choroiditis, in which, under electrical treatment, flakes in the vitreous had disappeared. (*loc. cit.*)

Sorokin. *Parasitic Growths in the Eye. Der Arzt.* No. 16. The forms observed by Förster and Gräfe do not belong to leptothrix. In the cornea of an eye which had perished from panophthalmitis, he observed long, thin, opaque filaments; they are thicker than those of leptothrix buccalis, show a tendency to twist themselves lengthwise around each other, or to assume a curved form. Attempts at cultivation failed, excepting in human blood; here the filaments lengthened, gathered themselves together in a curved form, showed transverse marks of segmentation, and divided into two to five pieces of different length; the process lasted from twenty-five minutes to one hour. The new pieces congregated, and thus formed additional bundles. This is a new form, *leptothrix oculorum* Sorokini. In an eye effected with panophthalmitis after iridectomy, and also in an existing catarrh of the lachrymal passages, he found filaments dividing dichotomically, having a thickness of 2 or 3 division marks of the micrometer; they also exhibited transverse division, and thus formed widened rings. The twigs branch off only where there are transverse divisions. Besides these, there were folds of cells of various size and shape. All attempts at cultivation failed. (*loc. cit.*)

Wolfe, J. R. *On Artificial Pupil. Medical Times and Gazette*, June 1, 1881, p. 611. In a lecture delivered at Anderson College, W. gives the indications for the operation, and among the contra-indications, says that in occclusion from specific iritis no operation should be attempted till twelve months after all disappearance of irritation in the eye.

During the twelve months' interval the patient must be kept on iodide of potassium and mercury. He described the operation and points of selection. He deprecates the employment of iridotomy. (*loc. cit. Fitzgerald.*)

Theobald. Remarks upon the use of *Duboisia in Ophthalmic Practice*, with report of a case in which *alarming constitutional symptoms* followed its application to the eyes. *Maryland Med. Jour.*, vol. viii. T. thinks the toxic action of the drug more likely to manifest itself in an uninflamed eye than in one that is inflamed. Its unpleasant effects are manifest within an hour after it is applied to the eye. (*loc cit. Swan M. Burnett.*)

Haab. *Anatomical Examination of an Anophthalmus, at the age of* 27. Ophthalmological contributions on the occasion of the Jubilee of Horner. Weisbaden, 1881. The ocular muscles normally developed; the globes appeared as small nodules the size of a bird-shot; the optic nerves were delicate, thin threads, the orbits of normal size. Sclerotic, choroid, pigment epithelium, retinal elements, and vitreous could be demonstrated in the eye, but no conjunctiva, cornea, iris, ciliary body and lens. The optic nerve consisted only of connective tissue. The optic tracts could be followed as white strings up to the corpus geniculatum internum. The corpus geniculatum externum was absent, the pulvinar thalami optici distinctly smaller. The thalamus and corpora quadrigemina could not be distinctly traced. (*loc. cit.*)

Hirchberg. *Coloboma and Microphthalmus. C. f. A.*, September. Congenital microphthalmus is in some cases combined with amaurosis, opacity of the lens, diminished tension, cyclitis and coloboma of the iris. Hirchberg has observed four cases of this kind. (*loc. cit.*)

Leydig. *The Eye-like Organs of Fishes.* Bonn, 1881. Certain spots upon the ventral surface of some sea-fishes, which by Leuckart had been explained as secondary eyes, are not taken as organs of special sense by Leydig, who supposes that they are allied to the spendo-electrical or electrical organs of other fishes. (*loc. cit.*)

Michel. *Iris and Iritis.* G. *Arch. f. Ophth.*, vol. xxvii, 2. I. Histology. The proper substance of the human iris is enclosed between two membranes; the anterior limiting membrane is a delicate layer of endothelial cells; the posterior one consists of peculiar cellular elements; upon its posterior surface is a pigment layer of nearly round, irregularly arranged, pigmented cells. Behind the endothelial membrane is a layer of anastomosing cells, interspersed with lymphoid cells, and resembling the reticulated structure of the lymphatic glands; for this reason Michel calls it the reticulated layer. Behind this layer, and partly projecting into it, is a radiating trabecular arrangement of connective tissue fibres; these trabecles support the numerous blood vessels and nerves; they are covered with flat cells, and the spaces between the trabecles and between these and the posterior limiting membrane, are filled with a reticulum of cells, arranged in a similar manner as in the reticulated layer. For this layer Michel proposes the name "vascular layer." From in front, backward, the iris consists, therefore, of the following layers: 1, anterior limitans (endothelial membrane); 2, reticulated layer; 3, vascular layer; 4, posterior limitans; 5, pigment layer. From its histological elements, the iris would appear to be a modified glandular structure. The system of lucunæ are lymphatic cavities in which the nutritive material, filtered from the blood vessels, is collected; the anterior chamber is a large lymph cavity. II. Development. 1. In the human embryo, the development of the sphincter portion takes place very early; that of the ciliary portion at the end of the sixth month. 2. The pupillary membrane is a pellicle which contains nuclei, epithelial cells and blood vessels; the latter two disappear, and the pupillary membrane becomes the endothelial layer upon the anterior surface of the iris. 3. At a certain period of fœtal life there is a fold in the ciliary portion, the plica iridis. If the two opposite surfaces of the pupillary membrane are not separated, the so-called membrane pupillaris perseverans will be formed. 4. At a certain period of fœtal life the posterior portion of the iris shows three layers: the pars ciliaris retinæ, the pigment layer, the limiting membrane. The pars ciliaris retinæ becomes pigmented and disappears. 5. The pigment layer and limiting membrane send projections into the sphincter portion; the largest and most strongly pigmented projection is at its peripheric portion, the so-called pigment spur. 6. During embryonic life smooth muscular fibres cannot be demonstrated in any part of the posterior limiting membrane. 7. During the last months of embryonic life, and in the new-born, the posterior portions consist of only two layers, the pigment layer and the limiting membrane. 8. The limiting membrane must be taken as a continuation of the primitive limitans retina. 9. The projections from the posterior limiting membrane into the sphincter are the connective-tissue septa, which separate the bundles of the muscle. The pigmentation of the so-called stroma of the iris is of post-fœtal development. (*loc cit.*)

Ogneff. *Histiogenesis of the Retina. Centralblatt, f. d. Med. Wissensch.*, No. 35 1. In the earliest stages (rabbit's embryo) the retina consists throughout of spindle-shaped cells with oval nuclei and a narrow zone of protoplasm. From both ends of the cells, which lie on a different level, both inward and outward, are processes which are vertical to the outer surface of the retina, and which pass through its entire thickness. Here and there upon the outer surface of the retina are large transparent elements with round nuclei. Distinct mem-

branes which would be taken as the outer or inner limiting membranes are not found at this stage. 2. The next changes are that the innermost cells become divided, larger and rounder. Their nucleus becomes more distinct, and they send off several processes which again form multiple ramifications. The processes, which run inward, and of which each cell sends off one only, turn and take a course parallel to the inner surface of the retina. They are the first indication of the layer of nerve fibres. The outermost layer of cells is distinguished by thick, at their inner end, foot-like projections; these elements are the embryonic Müller's radical fibres. The formation of the nerve cells and of Müller's fibres is therefore one of the first embryonic changes in the retina. 3. Then between the nerve fibres and the spindle-cells above them there appears a small stripe, the first indication of the molecular layer. At this period the layer consists of numerous processes of the nerve cells, of the straight columns of Müller's fibres and of processes of the spindle-cells and numerous very small granules. 4. The layers become more and more developed; especially the molecular and nerve cell layers become more sharply defined and thicker. Free nuclei and roundish cells appear in the molecular layer. The differentiation of the retinal layers becomes completed by the formation of the rods, and of the two layers and granules. The rods are processes of the outermost layer of cells, which grow beyond the outer limiting membrane. The retina of the mammalia shows the same process of development as that of the birds and batrachia. (*loc. cit.*)

Wälchli. *Microscopical Examination of the Colored Globules in the Retina of Birds. G. A. f. Ophth.*, vol. xvii, 2. There are three kinds of coloring matter in the globules, sphærorhodin, sphæroxanthin and sphærochlorin. (*l. c.*)

Wall. *Congenital Absence of the Eyeballs.* N. Y. *Med. Rec.*, March 26, 1881. The appendages of the eyes and the lachrymal glands were present. (*l. c.*)

Wetschtamon. *An Anomalous Structure of the Human Eye. Aerztliche Zeitung*, Nov. 1881, No. 36. Absence of both irides. Both eyes turned in and up. (*l. c.*)

Wiethe. *A Case of Congenital Deformity of the Papilla. Arch. Ophthal.*, vol. xi, No. 1. The papilla showed two dark elliptical depressions. (*l. c.*)

Deutschmann. *On the Physiological Chemistry of the Fluids of the Eye. Arch. f. Ophth.*, vol. xxvii, 2. In the fresh aqueous humor there is 0.03 of albumen. In the vitreous there is much more than in the aqueous. It increases in both after death, more rapidly in the aqueous. (*l.c.*)

Pflüger. "Internat. Ophth. Congr. in Milan," p. 197. Atropine reduces the intra-ocular tension. Eserine increases it, also the continuous current. Experiments to be continued. (*loc. cit.*)

Butz. Preliminary communication on the examination of *Physiological Functions of the Periphery of the Retina. Arch. f. Anat. und Phys.*, Phys. Department, 1881, vol. 5. The sensibility to light of every wave length increases from the centre toward the periphery up to 30°, then decreases more or less rapidly, according to the kind of light. The increase in the sensibility to all kinds of light varies; in the most peripheric part of the retina it is highest for violet and lowest for red.

Goltz. *The Functions of the Cerebrum. Gesam. Abhand.* Bonn, 1881. The supposition of circumscribed centres in the cerebral cortex, with special functions, is untenable, consequently there is no part of the cerebrum which is distinctly set apart for vision. The visual disturbances which occur after traumata to one side of the cerebrum are symptoms of a general dulness in all the senses, and are caused by a general intellectual dulness. Goltz proposes the term cerebral diminution of sight, or cerebral amblyopia. (*l. c.*)

Landolt. *The Functions of the Retina. Arch. d' Ophth.*, vol. 1, 3. The retina has three functions, the perception of light, color and form. That of light is distributed over almost the whole retina equally, only in a small part around the fovea centralis it is somewhat greater. Perimetrically it extends outward 100°, inward 60°. The color perception decreases rapidly toward the periphery, but by higher intensities of light, colors are recognized to the limit of the field of vision. Perception of form decreases rapidly toward the periphery, so that at 50° from the point of fixation they are no longer recognized. The cause is want of practice. (*l. c.*)

Parent. *Optometry, Ophthalmoscopy and the Inverted Image. Rec. d' Ophth.*, 1881, Sept. Refraction can be determined in the inverted image in two ways. (1) By gradually moving the object lens to or from the eye, and noticing the change in the size of the image. In emmetropia it remains the same, whether the lens is held nearer to or further from the eye. In hyperopia the size of the image decreases when the object lens is removed from the eye examined. In myopia it increases under the same conditions. (2) By observing the parallactic displacement in comparison to a certain amount

of upward motion of object lens. If we move the lens in the vertical plane, the image changes as follows: in emmetropia to an equal extent, in myopia to a lesser extent, in hyperopia to a greater extent. If we place certain glasses before the eye examined, and make these experiments, we can almost tell the amount of the anomaly of refraction by trying until the motions correspond to what they should be in emmetropia.

Schön. *Venous Pulsation in the Retina. Klin. Monasbl. f. Augenheilk.*, p. 345. 1. Venous pulsation is a phenomenon of impediment. 2. The exit of the usual quantity of venous blood is diminished by compression. 3. The pulsation is brought about by arterial pulsation. 4. The region in which this happens must include the optic nerve up to the lamina-cribrosa. (*l. c.*)

Bjernum. *Hemianopia for Colors. Dansk. Hosp. Tidende*, January 18, 1881. Total color-blindness in the left half of the field. The margin passed precisely through point of fixation, in a vertical direction. There was an acute brain trouble; at least, the patient complained of a severe headache, and died suddenly. He was 39 years old. Unfortunately there was no post-mortem. Bjernum cites this case in upholding a theory of the existence of a color centre. (Samelsohn reported a similar case in November of last year.) (*l. c.*)

Brailey. *Report* of the Committee of the Ophthalmological Society *on Color-blindness.* Trans. Ophth. Soc., vol. 1, p. 191. *British Medical Journal*, April 23, 1881. *C. f. A.*, Sept., p. 289. There were 18,088 patients examined, 16,431 men, and 1657 women—with Holmgren's worsteds test. Of the men, 949 were Jews, showing 4.9 per cent., and 491 Quakers, showing 5.9 per cent.; 145 deaf mutes with 13.7 per cent. of color-blindness. Of the remaining 14,846 men (of all conditions) there were 3.5 per cent. color-blind.

Among the women there were 730 Jewesses with 3.1 per cent., 122 deaf mutes with 2.4 per cent., and 216 Quakers with 5.5 per cent. Among the remaining 489 women, 0.4 per cent. were color-blind. This unusual number among women is explained by the fact that Brailey says that in them it was not very pronounced. It was first doubted in the reference in the *Centralblatt* and absolutely contradicted by Cohn, of Breslau, that such a difference is found between the higher and lower classes, as Brailey says that in the lower classes he found 3.7 per cent., and in the higher only 2.5 per cent. All who could not distinguish the paler shades were classed as slightly color blind; those who confounded red and green as pronounced. There were 615 of the latter class, and three cases of total color blindness. It was very seldom that blue and violet were mistaken for one another. Those who compared pink with deep blue, or violet and scarlet with dark green, were considered red-blind. Those who compared pink with gray or green, and scarlet with light green or light brown, were considered green-blind. The red-blind had no perception of light coming from the distance through a red glass, while those who were green-blind distinguished it perfectly. Red-blindness appears to be somewhat more frequent than green-blindness in England. The intelligence of the person had no connection with the color perception. It was hereditary. (*l. c.*)

Donders. *Color Blindness. An. d' Oc.*, Sept., 1881. *A. f. Ophth.*, Vol. xxvii. 1. The first part is principally historical. He argues against Hering's theory, and also for the separate condition of a red- and a green-blindness. There are four primary colors, red, yellow, green, blue, and 5–6000 color impressions.

Dor. *Perception of Colors.* "Intern. Med. Congr.," in London. *Arch. Ophthal.*, x, p. 339. The perception of colors takes place in the brain or optic nerve, but not in the retina.

Dor. *Concerning Our Knowledge of Daltonism.* "Intern. Ophth. Congr.," in Milan, p. 179. Discusses the priority of Holmgren's method. As early as 1859 he used a similar method, employing the same test colors. Since he did not publish it, Holmgren could not have known it. He rejects the classification into red, green, and violet-blindness, and admits five kinds: total color-blindness, red-green blindness, with normal or shortened spectrum; blue-yellow blindness, with normal or shortened spectrum. Holmgren's method is not a certain one. Rejects the Young-Helmholtz's theory. Delbœuf's cure for color blindness is in reality no cure. (*l. c.*)

De Fontenay. Om Farvesansquelser. Hospitals-Tidende, July 28, 1881. Recommends a systematic education of the color sense in school, and in his Kontrol Med. Farveblindheden. Hospitals-Tinende, Sept. 14, 1881. He examined 2737 men, finding 3 per cent., and 502 women, with 0.6 per cent. of color blindness, in railroad employés. (See another paper by the same author, based on the examination of 9659 persons. *Archives Ophthal.*, Vol. x, p. 8, etc.)

Jäger. *Method of Educating and Developing the Color Sense. Natur*, No. 47. Recommends the system of Magnus. (*l. c.*)

Jeffries. *On Some Points in Regard to Color Blindness, Journ. of Nervous and Mental Disease,* July, 1881. Contests the assertion of Bannister, that color-blindness can have no practical bearing in railroading, it being a well-known fact that color-blind people can perfectly distinguish colored signals. (*l. c.*)

Macé et Nicati. Contribution to the Study of the Visual Field, for Color. *A. d' Ophth.*, vol. 1, p. 506. A red, a green, and a blue glass is held successively before the eye, and it is determined how far a white piece of paper can be distinguished on the perimeter. The field for red is most contracted on gradually diminishing the intensity of light. Atrophy of the optic nerve and glaucoma show the narrowest field for red, by good illumination ; and also the most pronounced reduction of central vision, when a red glass is held in front of the eye. In alcoholic amblyopia the central scotoma for red is the most pronounced.

Pierduh. Une visite aux aliénés de la province à Mombello. Internat. Ophth. Congr. in Milan, p. 162. In Italy Daltonism is not so frequent as in Northern Europe. This is due to climatic and geographical influences, and also to the great vocabulary of words denoting colors. Among 900 insane persons there was not one case of Daltonism. Violet was the color, distinguished with most difficulty. A majority of those suffering from melancholia shrank from bright colors. (*loc. cit. W. C. Ayer's Transl.*)

The Progress of Ophthalmology During the Fourth Quarter of the Year 1881, by H. Magnus, Breslau; C. Horstmann, Berlin ; and A. Nieden, Bochum; and others.—*Archiv. Ophthal. Vol. XI, No.* 2.

Translated by Dr. F. E. D'Oench, New York.

Javal. *Eclairage électrique au point de vue de l'hygiène de la vue.* Soc. de Mèd. Publ. de l'Hygiène Professionelle. Séance du 26 Oct., 1881. *Progr. Méd.* No. 51. Javal hopes that the use of electric light may become universal. If the necessary precautions are observed, especially in the use of goggles, the eye is not endangered. In place of blue or gray goggles, Fieusal recommends yellow ones, as they absorb the violet rays more completely. Mesmil argues against the electric light.

Reich. *Israelites and Military Service. Med. Zeitung,* No. 9. In fifteen cases, all of them Israelites, a traumatic cataract had been intentionally produced, in order to escape military service.—*Hirchmann.*

Weber. *Examination of the Eyes in the High Schools of Darmstadt.* Appendix to the Medical Report of the Grand-ducal Ministerial Department for the years 1877–80. Darmstadt, 1881.

The author treats the subject very thoroughly, and comes to the following conclusions: 1. In view of the injurious results of poor illumination, the windows, where skylights cannot be introduced, should not extend lower down than the height of the scholars when standing upright; where there are windows already, they should be provided with ground glass up to this height, on the south and west sides, in their entire extent; rooms for drawing and female handiwork should be lighted from above. In view of other demands connected with the question of illumination, a revision of the laws governing the building of schools, based on the principles of hygiene now established, is urgently advised. 2. In view of the attributes of a good school-bench set forth, the introduction of Lickroth's school bench, with a top 50 cm. broad, is to be ordered; for drawing and female handiwork, they should be replaced by other apparatus. 3. In view of the different size of the scholars of the same class, they should receive seats corresponding to their height, as determined at the beginning of each term. 4. In view of the necessity of sufficient ventilation, and the injurious influence of long-continued sitting, and its insufficient neutralization by play, as proved by statistics, instruction should be limited to three quarters of an hour at a time, and the remaining fifteen minutes be devoted to gymnastic exercises, drilling, etc. 5. In view of the injurious influence of poor carriage of the body, the teachers are instructed to see that the distance between eye and work is at least 35 cm., and that there is always the necessary amount of light, to be determined by appropriate trial-plates. 6. In view of the injurious influence of poor material, all printed matter not in accordance with the principles established in respect to it should be discarded, also checkered blank-books, plates, models for drawing, printed charts, and too fine needlework. 7. In view of the injurious influence of sewing of all kinds on children not at least ten years old, and in view of the necessity of stricter mental occupation at this age, a complete reform of this instruction is demanded. 8. In view of its mentally as well as physically injurious influence, the present system of penmanship should be replaced by a round-hand form. 9. In view of the unprofitableness of dictation, it should be forbidden from principle, and only allowed for the shortest notes. 10. In view of the necessity of constant medical control over the hygienic postulates of the school.

Dufour. *Transplantation of the Conjunctiva.* Transac. of the Intern. Med. Cong., London,

viii. *Rev. Méd. de la Suisse Rom.*, 1881, No. 10, Oct. 15. The human conjunctiva may be replaced by that of the rabbit; also by other mucous membranes. There must be no bleeding of the spot upon which the mucous membrane is transplanted. Great care must be taken in applying the sutures; it is best to insert them into the patch before transplanting it. Dufour did not observe any shrinkage of the transplanted piece of mucous membrane. It is not advisable to use salicylic acid during or after the operation.

Förster. *Some Improvements in the Operation for Senile Cataract. Schlesische Gesellsch. f. Vaterländische Cultur*, Oct. 18, 1881. Breslau, *ärztl. Zeitchr.*, 1881, No. 24, and Rep. on the thirteenth meeting of the Ophth. Soc. at Heidelberg. When the cataract ripens slowly a squint hook, after previously making an iridectomy, should be passed over the cornea several times, pressing and rubbing upon it; the corticalis, being not yet entirely opaque, is thus broken up within the capsule. The capsule should not be opened with the cystotome, but with a fine forceps, as in this way the greater part of the anterior half of the capsule may be removed from the eye, thus diminishing the danger of subacute iritis, of irido-cyclitis. Carbolic acid for disinfecting the eye or the instruments should be discarded. The instruments, however, should be disinfected in absolute alcohol before the operation. Not much weight is attached to disinfecting bandages.

Brettauer. *The Local Application of Iodoform.* Report of the thirteenth meeting of the Ophth. Soc. at Heidelberg, 1881. Iodoform not only seems to cause irritation in diseases of the conjunctiva and cornea, but also seems to diminish the secretion of the conjunctiva, to bring about retrogressive changes in granulations, and to act beneficially in sclerosing keratitis. It is used in form of a powder, or as a salve in equal parts with vaseline.

Carreras-Aragó. *Pilocarpine in Diseases of the Eye. Revista de cienc, Med., de Barcelona.* Report C. f. A., p. 341. Its use is indicated in all affections in which an energetic contraction of the pupil is desired; for instance, in conical ulcers threatening incarceration of the iris. *Success slight in detachment of the retina.*

Josso. Paris, 1881. Doin, 60 pages. Out of sixteen cases, fifteen were successfully treated by subcutaneous injections of pilocarpin. Compare the less favorable results obtained by Carreras-Aragó precisely in regard to this point.

Kauders. *Pilocarpine as an Antidote of Atropine. Wiener Med. Wochenschr.*, 1881, No. 45. Pilocarpine is a speedily acting and sure antidote of atropine.

Krömer. *On the Use of Antiseptic Solutions of Atropine and Eserine. Correspondenzblatt f. Schweizer Aerzte*, 1881, No. 19. Boiling the solutions, and adding boracic acid 4 : 100 and carbolic acid 1 : 1000, keeps them clear and free from the development of bacteria.

Königstein. *Notes on the Histology of the Eye. Graefe's Arch.*, Bd. xxvii, 3. 1. The nerves of the sclera. The human sclera has nerves of its own ending within it. 2. The pupillary membrane. It consists of four to five larger blood vessels, forming arches; numerous small blood vessels, coming from the iris and communicating with each other, empty into these arches. The centre of the pupillary membrane is always free from blood vessels. The blood-vessels of the pupillary membrane do not come from the circulus iridis minor, but in conjunction with the blood vessels of the ciliary muscle and ciliary processes from the ciliary blood-vessels. The retrogressive change begins toward the end of the 7th or the beginning of the 8th month.

Cahn. *The Physiological and Pathological Chemistry of the Eye. Beitschr. f. Phys. Chemie.* Bd. v. p. 214. The reaction of fresh retina is genrally alkaline; on the external surface sometimes acid. The retina of the ox contained water 86.52; albuminous substances 6.77; substances resembling albumen 1.59; alcohol extract 0.25; aqueous extract 0.42; cholesterine 0.77; fat 3.47; lecithine 2.03; soluble salts 0.93; insoluble salts 0.02; traces of cerebrine. There is no essential difference between the chemical composition of the aqueous humor and the vitreous. The lens consists of globuline. In cataractous lenses a decrease of albumen could be demonstrated, as also the coagulation of a portion of the albumen.

Denissenko. *Investigations on the Nutrition of the Cornea. Virchow's Arch.*, Bd. lxxxvi, 3. 1. The cornea does not draw its nourishment from the anterior chamber (Knies, Ulrich), but from the surrounding blood vessels in the sclera. Therefore, the cornea is nourished in the same manner as every other tissue of the body. 2. Although the blood vessels nourishing the cornea are situated in the sclera, at some distance from the sclero-corneal margin, the nourishing fluid, after leaving them, is conducted through the fibres and fissures of the sclera to the corneal margin, where it enters the lacunar system, and is distributed throughout the entire thickness of the cornea, and then discharged into the anterior chamber. 3. The current does not flow from the centre to the periphery of the

cornea (Knies, Ulrich), but from the periphery to the centre (Cohnheim, Szokalski), and not from behind, forward (Knies, Ulrich), but from in front, backward. 4. Therefore, the stomata, which Klebs and others have demonstrated in the epithelium of Descemet's membrane, do not form the commencement of Recklinghausen's lymph spaces for drawing nourishment from the anterior chamber, but serve to discharge the waste products. 5. This shows that the cornea does not draw its sustenance from the anterior chamber, but that, on the contrary, the waste products are discharged into the anterior chamber. 6. It therefore follows that the anterior chamber is an enlarged duct for discharging the aqueous humor. 7. Therefore it may be said that not the anterior chamber nourishes the cornea, but the cornea the anterior chamber.

Schmidt-Rimpler. *The Empiric Theory of Vision. Sitzungsber. der Gesellch. zur Beförderung der ges Naturwissensch. zu Marburg*, 1881, No. 4, Dec. A child, three years old, had forgotten its sight so completely, in consequence of an acquired opacity of the lens, that after being successfully operated, it had to learn to see again. This is against the view of Dubois-Reymond, according to which the ability to interpret correctly the impressions on the senses is not exactly congenital, but comes suddenly, the child not being taught by experience, in the way assumed by the empiric theory.

Frankhauser. *Examination of the Scholars of the High School at Burgdorf for Color Blindness.* Ann. Rep. of the high school at Burgdorf, at the close of the school year 1880–81. Holmgren's and Pflüger's methods were employed. Stilling's plates are not always reliable, and can, therefore, not be recommended. Red-green blindness was found in 6.2 per cent. out of 177 scholars; 44 made mistakes, though not color blind. It is advised to cultivate the color sense at school; the system of Magnus was used for this purpose, with good results in general.

Lagethschnikoff. *A Rare Case of Elephantiasis Palpebrarum. Med. Uebersicht*, Bd. xv, p. 894. Both lids are very much enlarged; the upper hangs down to the nasal angle. The disease began in early childhood. (Hirchman.)

Mandelstamm. *A Case of Sarcomatous Ectropium*, with some remarks upon Trachoma. *Arch. of Ophth.*, Bd. xxvii, 3, p. 101. From the condition of the ectropionized lids, the author concludes that the tendency of the epithelium of the conjunctiva to become hypertrophic is great, not only when directly exposed to the air, but also when, in consequence of unknown injurious influences (dust, smoke, scrofula, barrack air, etc.), trachoma develops. The hypertrophy of the epithelium, together with the hyperplasia of the adenoid tissue, is of primary importance in trachoma; perhaps the pertinacity of the disease may be ascribed to it. When the hypertrophy has once begun, it can cause, at any time, fresh irritations of the adenoid tissue.

E. Grüning. *Traumatic Ophthalmoplegia. Med. Record*, Nov. 12: All the muscles of the left eye were paralyzed by a blow of the fist. The O. N. showed no alteration with the O. S., but there was total blindness. G. thinks there must have been fracture of the pyramid of the orbit, with laceration of the optic nerve. (Swan M. Burnett.)

C. Higgens. *On Distention of the Frontal Sinuses. Guy's Hosp. Reports*, vol. xxv, 27, 1881. A report of four cases in H.'s practice, with critical remarks and citation of published cases and opinions. In case 1, M., 32, there had been abscess in the same place at age 7, and injury followed by removal of dead bone from same place; age 16, tumor noticed eight months. Case 2. M., 13, no injury, swelling noticed six months. Case 3. F., 19, no injury, tumor eight months. Case 4. M., 36, age 14, was kicked over his eyes; age 29, another injury by iron bar over orbit. Pain in L. supra-orb. region began two years later, together with some ptosis and pain at pulley of supr. oblique. No swelling till three and-a-half years, after which he first was seen, or five to six years after second injury. All treated by free incision and establishment of an opening from floor of distended sinus into nose; result good in all. Remarking on the difficulty of diagnosis in this disease, H. makes the important, and probably new observation, that the swelling (when it has caused absorption of bone) varies in size at different times of day, being smaller after lying down for some hours; *it always points above the tendo-oculi.*—*E. Nettleship.*

Kramosztyk. *A Foreign Body in the Orbit. Gaz. lekarsk*, 1881, p. 76. A man 45 years old was attacked with typhoid fever, shortly after having received a blow from the shaft of a wagon. The whole time he was ill he complained of severe pains in the eyes. Three months later slight blepharospasm developed; the eye was deflected inward considerably. There was a small ulcer at the upper inner margin of the cornea, next to which a foreign body, firmly imbedded, was detected by the probe. It was extracted with difficulty and found to be a piece of wood six cm. long. The canal in which

it lay had a smooth cicatricial surface, and bone was exposed. The convergent squint was caused by formation of this canal, which extended inward along the internal rectus muscle. Vision was not perceptibly reduced.—*Hirschmann.*

Nsarkiewicz-Jodko. *Cases of Lesions of the Eye, of Traumatic Origin. Gaz. lek,* 1881. After an insignificant injury an inflammation of the orbital tissue set in, which led to the formation of an abscess. The abscess was opened, and a temporary improvement ensued, though there was soon a relapse. The patient, who went elsewhere, was treated expectantly. Three weeks later a second abscess opened spontaneously, and all the symptoms of disease disappeared. The eye, however, was totally amaurotic, showing atrophy of the optic nerve. It follows, therefore, that in abscesses of the orbit an active, not a waiting, treatment must be adopted at an early date.

Berlin. *A Case of Injury of the Optic Nerve Through Fracture of the Optic Canal. Ber. über de* 13, *Vers. d. Ophth. Ges.*, p. 81. The author observed, at the autopsy of a suicide, a fracture of the optic canal, which had severed the nerve, not only within the canal, but also within the brain.

J. R. Wolfe. *Aneurism of Orbit (Pulsating Exophthalmus) Following Injury Cured by Ligature of Common Carotid. Lancet*, Dec. 3, 1881, (ii, 945). F., 22; symptoms began three months after a blow on left eye, with pain and beating in the head, slight proptosis and bruit heard in orbit; eight months after injury, proptosis greater; a short, pulsating tumor near inner canthus, with thrill and puffing bruit; pulsation stopped by pressure on parotid; papillitis, with extreme venous engorgement. Vision somewhat defective; ulceration of cornea. Ligature of common carotid by Dr. Foulis, eight and a half months after injury; full antiseptic precautions and catgut ligature. Pulsation stopped and tumor much diminished. S. recovered perfectly and O. D. cleared. Four weeks after operation only slight proptosis (E. Nettleship).

Skrebitzky. *Case of Anophthalmus, with Congenital Cysts in the Lower Lids. Klin. Monatsbl. f. Augenhk.*, B., xix, p. 423. In a child six months old, otherwise healthy, and with a normal skull, the orbit was found absolutely empty. Globular tumors of the size of normal eyes protruded upward beneath mucous membrane of the lower lids; fluctuation was easily perceptible. Either they were cysts of the lower lids or malformed eyes.

Kranhik. *The Cause of the Diseases of the Conjunctiva in the Army. Wratsch*, No. 10, 1881. The causes are insufficient sleep, drill in the sun, too tight cravats and collars, besides bad air in the barracks, and diseases of irritability of the conjunctiva acquired before serving.—*Hirschmann.*

Fialkowsky. *A Case of Papulous Syphilis of the Conjunctiva Bulbi. Wratsch*, No. 5, 1881. After a syphilitic angina and condylomata at the anus, a nodule resembling a phlytænula developed on the conjunctiva of the globe three to four mm. downward and inward from the cornea, which ulcerated on the fourth day, and disappeared without any local treatment after fourteen subcutaneous injections of sublimate (cgrm. per dose).

Mikucki. *Eserine in Keratitis, Medycyna*, 1881. Mikucki recommends the use of eserine in ulcers of the cornea, especially at the periphery, basing his advice on the clinical history of twelve cases.

Kramsztyk. *Neuro-paralytic Keratitis, Medycyna*, 1881. Kramsztyk discusses the identity of the so-called neuro-paralytic keratitis, with other affections of the cornea which occur in severe forms of the disease, when the patients remain unconscious for some length of time, with eyes half open. They are due to the loss of moisture of the cornea.

Gouvêa Hilario (de Rio Janeiro). *Aniridia Congenita of Both Eyes, with Deficiency of the Ciliary Bodies and Anterior Part of the Choroid.* Transact. of Intern. Med. Congr., London, vol. iii, p. 120. Man, 23 years old; complete absence of iris in both eyes; lenses dislocated upward, so that there is an aphakic space at the lower corneal margin. No sign of the presence of ciliary processes, nor of the anterior part of the choroid, while the posterior part is more or less normal, as are also the blood vessels of the retina.

Hänsell. *Experiments in Vaccinating Syphilis upon the Iris and Cornea of the Rabbit. G. A. f. O.*, Bd. xxvii, 3, p. 93. The experiments were made with the thin, purulent contents of a gumma which was still intact. On the twenty-fifth day after vaccination iritis set in in both eyes, together with the growth granulamas resp. papules and gummata in the ciliary body. When only the cornea was vaccinated, several small, very vascular nodules developed. The animal died after six months of marasmus. The lungs and liver were infiltrated with small tumors resembling tubercles. The same result ensued in about four weeks, when the secretion from "plaques muquesses," well known for its high infectious power, or from particles of a still in-

tact sclerosis, was used. A characteristic difference between the syphilitic and tuberculous nodules consists in much greater vascularization of the former, and in the tendency of the latter to caseous disintegration. Vaccinating with lupus produced no result whatever.

Hosch. *Primary Sarcoma of the Iris. C. f. a.*, Bd. v. p. 361. It has developed in a person 66 years old, at a spot upon the iris where a pigmentation of a darker brown has existed ever since his youth. The tumor proved to be a pigmented spindle-cell sarcoma, which had not yet touched the choroid and ciliary body. The author assumes with Knapp the probability of a conversion of the normal pigmented hyperplastic tissue in the neoplasm during the later years of life. The newly formed pigment undoubtedly comes from the blood vessels.

Hosch. *A Case of Gumma of the Ciliary Body. C. f. a.*, Bd. v. p. 365. The author adds six cases which were overlooked by Seggel in his bibliography in (*loc. cit.*) Patient 37 years old; 7 months after infection a rapidly growing tumor developed under violent symptoms of inflammation of the iris and choroid, and soon reached the size of a small cherry. Energetic inunction (120 grms. of blue ointment and one grm. calomel were used daily) gradually reduced the size of the tumor until it finally disappeared entirely.

Masse. *Pearly Tumors of the Iris. Rec. d'Ophth.*, July, August, 1881. After an injury of the eye combined with a penetrating wound of the cornea, sometimes cysts develop upon the iris, sometimes solid tumors. Many intermediate stages exist between these two varieties, the serous translucent cysts and the epithelial pearly tumors. Some cysts are almost entirely solid and filled with fat and epidermis cells; the pearly tumors also contain epithelial cells, fat and crystals of cholesterine. The want of an enveloping membrane in the pearly tumors, which the author doubts, constitutes only an apparent difference. Masse reports a case of a pearly tumor of the iris, observed by himself, which had developed around three lashes; they had entered the anterior chamber through a wound and lay upon the iris. The author has shown, by experiments upon rabbits, that when the lashes are deprived of the bulbs and brought into the anterior chamber, they do not cause the development of tumors of the iris; these are due to the presence of the bulb or small particles of the epidermis or conjunctiva. After introducing a piece of conjunctiva into the anterior chamber a cyst and pearly tumor of the iris developed in the same rabbit.—*Marckwort.*

Rymarkiewicz. *Polycoria in the Left Eye. Medycyna*, 1881. The normal pupil was somewhat displaced downward and inward. The second pupil was situated slightly upward and outward, was of an oval shape, with a major diameter of two mm., and a minor of one mm. The pupil of the right eye is slightly dislocated downward.

Priestley-Smith (Sheffield). *Acute Glaucoma Following Concussion, Cured by Eserine. Transact.* of the Ophth. Soc. of the Unit. Kingd. The *Lancet*, No. 25.

Arlt. *Spontaneous Rupture of the Anterior Capsule of a Cataractous Lens. Ber. d. Heidelb. Ophth. Ges.*, 1881, p. 130. A cataract has slowly developed in a myopic woman, 34 years old; seven years earlier detachment of the retina had taken place. The spontaneous rupture of the capsule happened during the night. A linear section was made, and a portion, consisting of cholesterine and fatty lenticular substance, removed. The eye remained good.

Critchett. *Practical Remarks on Cataract. The Ophthalmic Review*, vol. i, Dec. 1881, p. 21. C. divides his subject into two heads: 1. Cataract during its period of formation. 2. Cataract when it has so far arrived at maturity as to justify operative interference. The first of these he discusses under the head of "Preliminary Treatment of Cataract." He thinks we are too apt to treat cataract patients merely as subjects for operation, and that, consequently, they are often led to seek the advice of unscrupulous pretenders, who either promise to remove the opacity or to arrest its progress. He recommends a constant surveillance of the case from the time the opacity is clearly made out. He next considers the question as to how far it is expedient to inform the patient of the existence of the disease during its early stages. He concludes that it is impossible to lay down any hard or fast rule as regards this, for each case must be dealt with, as far as the exercise of judgment will permit, according to its own special requirements. With reference to the question as to what can be done for the patient in the way of palliative treatment, C. speaks of good results being often obtained by the employment of stenopœic glasses, with or without magnifying power. As regards the use of atropine, it is impossible to lay down any rule, but as a matter of policy, he indicates discretion in prescribing it, and insists upon the importance of always ordering a weak solution, and never instilling it into both eyes at once. (Fitzgerald.)

Goldzieher. *Ossification in the Periphery of the Lens.* Ber'd. 13, Heidelb. Ophth. Ges, 1881,

p. 155. In a globe enucleated on account of phthisis dolorosa, the anterior surface of the lens was found covered with an osseous capsule. Total detachment of the retina and choroid, due to the contraction of the cyclitic tissue.

Purtscher. *Erythropsia after Traumatic Cataract. C. I. A.*, Bd. v, p. 333. The cataract was absorbed spontaneously and completely. The pupil was perfectly black two and a half months after the injury. V = $\frac{1}{3}$. One morning, five months later, he saw all objects red, and this continued for three days. Two weeks later, after being much heated, the same phenomenon, without any ophthalmoscopic changes. V = $\frac{1}{2}$. Report of a second similar case in senile cataract.

Abadie. *Galvano-puncture in the Treatment of Detachment of the Retina. Soc. de Chir., Séance*, Nov. 30, 1881. *Prog. Méd.*, 1881, No. 49, et *Gaz. Hébd.*, Dec. 9, 1881. Detachment of the retina frequently has a local cause; it is, therefore, open to surgical treatment. Abadie recommends galvano-puncture with a platinum knife for this purpose. The sub-retinal fluid is allowed to escape through an incision, so that the retina can re-adapt itself. The inflammation which then sets in is supposed to fix the retina in its position. Eight cases were treated; six chronic ones, with transient good results; two cases of limited detachment, with "satisfactory" results. As the tension was permanently reduced in these cases after the operation (perhaps without galvano-puncture, from the detachment.—Reviewer), the author thinks of treating glaucoma in this way (Marckwort).

J. Hutchinson. *On Retinitis Pigmentosa and Allied Affections, as Illustrating the Laws of Heredity. Ophth. Rev.*, vol. 1, Nov., 1881, p. 2. After treating of the disease in general, the author reports his experience in regard to the influence of consanguinity upon the development of retinitis pigmentosa. He possesses the data of twenty-three persons or their families. Eight of these sprang from marriages among relatives, among whom there was no record of a previous case of the kind. Three of these patients were partially or completely deaf. In four of the eight cases, only one person was affected; ten times, more than one member of the family was affected; twice, three children; eight times, two children. In ten cases no consanguinity in the family could be proved by anamnesis, and among these, in five cases, two members of the family were affected. The author thinks that consanguinity is undoubtedly an important factor in the development of ret. pigmentosa, as it is for deaf-mutism and idiocy.

Retinitis Hæmorrhagica, especially in its Relation with Gout. Med. Times and Gazette, Dec. 10th, 1881, ii, 675. Considerations and conclusions based on twenty-four cases (including the case in Jaeger's Hand Atlas, pl. xiv, fig. 65). Of this number twelve had had gout, five others were probably gouty, and in seven no gouty history was obtained; nine were over 60 years old, none less than 45; thirteen males, eleven females. One eye affected in seventeen; both in seven. Gout probably predisposes to this affection, through the medium of disease of blood vessels, and "an incomplete thrombosis of the vena centralis" is probably the actual cause of the attack, suddenness of onset and asymmetry being in favor of this view. It differs from the relapsing intra-ocular bleeding of young adult males. H. refers to the possible connection of this latter disease, and also of hæmophilia, with gout, by the hereditary transmission of arterial disease.—*E. Nettleship.*

Macheck. *Retinitis Pigmentosa. Przeglad Lek.*, 1881. Of seven children of consanguineous parents, five are affected with ret. pigmentosa hemeralopia, and atrophy of the optic nerve. The other two children (daughters) are well, and their children have normal eyes. Symptoms of hemeralopia first manifested themselves after the tenth year; the only boy became totally blind when eighteen years old, while the sight of the four daughters was still moderately good in their twentieth year. The eyes were mostly myopic, 5 to 9.5 D.; all had nystagmus. The retinal deposits were accompanied in two cases by acute inflammation of the choroid, after strychnine had been tried for a time. Color blindness was observed in three cases; one complete, twice partial.

St. Marenitsch. *Unilateral diffuse syphilitic retinitis*, with complete loss of sight, cured in forty-eight days, by the use of iodine and mercury. *Prot. d. Med. Ges. in Wilna*, 1881, No. 3.—*Hirschmann.*

Mas. *An Interesting Case of Amaurosis Due to Hysteria, La Union de las Ciencias Médicas de Cartagena.* Two successive attacks of amaurosis in consequence of hysterical eclampsia, without any ophthalmoscopic changes, the one lasting five, the other thirty-one days, the amaurosis disappearing suddenly each time. These cases also are open to doubt.

Reid and Hunter. *Embolism of Central Artery of Left Retina.* Glasgow *Medical Journal*, Oct. 1881. An ordinary case of embolism with partial recovery, the important point being the history of numerous attacks of temporary total blindness of same eye, lasting from half an

hour to two hours, and usually coming on after severe exertion; at least twelve such attacks occurred in the three months preceding the final "embolism."

Priestley Smith. *Retinitis Pigmentosa, Connected with a History of Maternal Shock. The Ophthalmic Review*, vol. i, Dec., 1881, p. 30. In the history recorded by S. there was no constitutional nerve disorder in the earlier generations, and no consanguineous marriage. The mother of the cases he relates had borne two healthy children. She suffered a severe nervous shock during the earlier months of the third pregnancy; the child, and all the subsequent children, excepting one which died in infancy, developed retinitis pigmentosa with partial deaf-mutism.—*Fitzgerald.*

Unterharnscheidt. *The Development of Detachment of the Retina in Myopia. Berl. Klin. Wochenschr.*, No. 40, 1881, p. 585. The author concludes: If the ciliary muscle is suddenly relaxed when powerfully contracted (especially when wrong glasses are used or objects are brought excessively near), a reduction of the tension of the vitreous body ensues, which for the moment is considerable, and which cannot always be compensated for by a corresponding contraction of the eyeball, because the increased tension, the bulging and its consequences have diminished the elasticity. As the elasticity of the scleral tissue, which acts as a regulator, fails here, the law of the "horror vacui," so to speak, comes into play, which suffices, when there is the predisposition, to detach the stretched retina from the choroid, whose connection with the retina has been loosened. If the accommodative strain continues, the slight elevation may develop into a bullous detachment of the retina. As the increased intraocular tension which accompanies the accommodative action also causes absorption of the vitreous humor, it becomes mainly the part of the stream of diffusion which sets in when the accommodation is suddenly relaxed to fill the vacuum created. The compensating fluid from the blood vessels of the choroid would then increase the detachment, as the retina is no longer any obstacle. The author then discusses the therapeutics and prophylactic measures.

C. Higgens. *Three Cases of Simple Atrophy of Discs in the same Family. Lancet*, Nov. 19, 1881, vol. 2, 869. The fourth, fifth and eighth children of a family of ten, born alive. S. began to fail at æt 15 years in the fourth, 11 in fifth, and 10 in eighth. No other symptoms than simple atrophy of discs with almost blindness; failure rapid in fourth and eighth, slow in the fifth. Mother, symptoms of syphilis soon *after* birth of No. 4; Nos. 6, 9 and 10 healthy; No. 7 died almost at birth; between Nos. 4 and 5 were several miscarriages. Retinal blood-supply below normal. H. thinks the atrophy due to disease of blood vessels.—*E. Nettleship.*

Talko. *Injuries of the Eye in Recruits. Gaz. lekarsh*, 1881, *C. f. a.*, Bd. v. p. 386. Injuries of the cornea by caustic potash, nitrate of silver, or bites of leeches, are frequently found among the Russian conscripts. An artificial trauma of the eye was proven in sixteen cases out of two hundred and thirty-five who were suspected of simulating, or 7 per cent.

Drosdoff. *Epidemic Scurvy. Journal of the Kasan Med. Soc.*, 1881, Nos. 14 and 15. From a report by Krückow. Among 200 scurvy patients, 28 with diseases of the eye. Besides hemorrhages beneath the conjunctiva and skin of the lids, four cases of keratitis serosa diffusa (one with a corneal ulcer), two cases of iritis, four of hemoralopia.—*Hirchmann.*

v. Hippel. *Affections of the Eye in Recurrent Fever. Ber. über d. Ophth. Klinik Zu Giessen, Stuttgart*, Enke, 1881. Among 193 patients, 23 cases = 11 per cent. were observed with affections of the eye. Most of them iridochoroiditis. Hypopyon was never observed. In four cases the ocular affection set in during the attacks in the others, one to four weeks later. In two cases hemorrhages of the retina were observed. Result favorable in all cases.

Luchhau. *Diseases of the Eye and Ear in Recurrent Fever. Ver. für Wissench.* Heilk. z. Königb. *Berl. Klin. Wochenschr.*, No. 43. Among 180 patients, six cases with diseases of the eye during the attack, in three iritis in one eye (once with hypopyon), in two optic neuritis of both eyes, and in one iritis in one eye with hypopyon during the first attack, from which recovery was complete, and during the second attack irido-cyclitis and neuro-retinitis in both eyes.

Hirchberg. *Tuberculous Inflammation of the Eye. Transact.* of the Internat. Med. Congr., London, 1881, p. 117. Among 1700 patients, three cases; one of the conjunctiva bulbi, one of the iris, and one of the choroid. The diagnosis was confirmed in each case by the anatomical investigation. In three cases, swelling of the lymphatic glands was observed as a secondary symptom, so that it is advisable to remove tuberculous deposits as rapidly as possible by operation. The changes in the eye are undoubtedly of a specific character.

J. A. Ormerod. *The Diagnostic Symptoms of Tabes Dorsalis. St. Bartholomew's Hospital Reports*, Vol. xvii, 39, 1881. O. directs his attention in the interesting paper, chiefly to the absence of the knee phenomena and affections of the pupils in the early stages of tabes. He observes, in the first place, that (as is known) the true "Argyll Robertson pupil" (a small pupil was associated, but with no reflex action) is subject to variations; it may be larger, but act as above; or it may be motionless to associated as well as to reflex stimulus. In eight cases, with marked incoördination, reflex action of pupils lost or feeble; associated action normal in six; both actions wanting or feeble in two. In four, with slight incördination, reflex action lost, associated action normal, two; both feeble, one; variable, one. In four with other symptoms but no incoordination, reflex action lost or feeble, associated action normal in three; both absent, one. In twenty-one cases, optic atrophy in four; six patients were more or less deaf, two of them having optic nerve atrophy (E. Nettleship).

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J. Hughlings-Jackson. *Tumors of the Cerebellum.* Proceedings of the Medical Soc. of London, vol. v, 50, 1881. The point of special ophthalmic interest is the author's statement, that he has never seen defective V. in cerebellar tumor without optic neuritis; thus, in reference to the hypothesis that such tumor, especially if of the middle lobe, might cause blindness by pressing on corp. quadrigen.

Zaufal. *Value of Ophthalmoscopic Examination for the Diagnosis, Prognosis and Therapeutics of Diseases of the Ear. Prager Med. Wochenschr.*, Bd. vi, No. 45, p. 448. When an inflammation of the middle ear spreads to the meninges, the eye of the same side is first attacked; generally, however, both eyes are affected. After trephining the mastoid process, the hyperæmia of the corresponding eye vanishes more rapidly. Almost all cases of otitis media, with or without caries, which lead to meningitis and thrombosis of the sinus are complicated with affections of the fundus of the eye.